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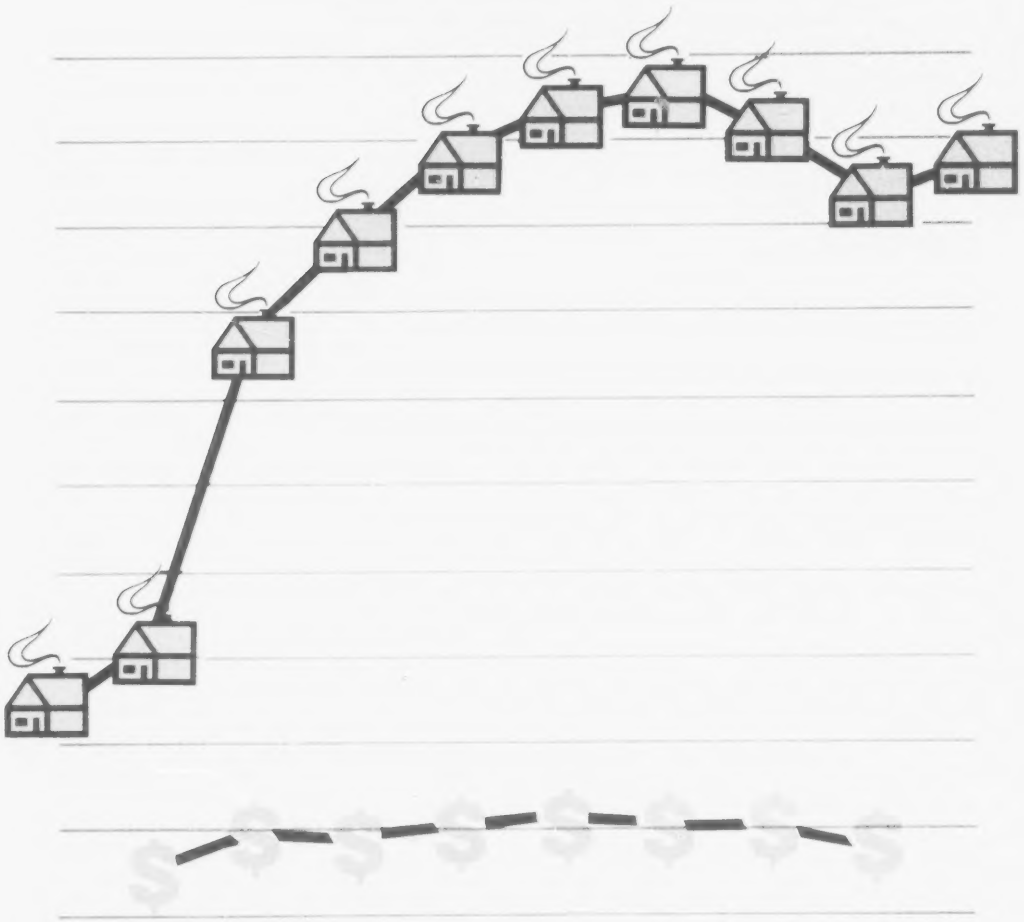
Narrowing the Gap

The Energy Needs of the Poor and Federal Funding



Diane De Vaul
Clifford Pearlman Nan Beth Rosso

NORTHEAST MIDWEST INSTITUTE
THE CENTER FOR REGIONAL POLICY

NORTHEAST-MIDWEST CONGRESSIONAL COALITION
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In late 1976, members of Congress from the region founded the Northeast-Midwest Congressional Coalition in recognition of the common problems facing their states and the fact that federal policies often create major obstacles to regional economic growth. The bipartisan group now includes nearly 200 members of the House of Representatives. The Northeast-Midwest Senate Coalition, which was formed in 1978, has 38 members. Together the Coalitions seek to inform their members about the regional implications of national policies and proposals, and to influence those issues of greatest importance to Northeastern and Midwestern states.

The Coalitions propose legislative solutions to the economic problems of the New England, Mid-Atlantic, and Midwest states, and work to assure that federal policies are equitable in their treatment of different areas of the country. Task forces help develop policy initiatives and positions on subjects ranging from the federal budget and economic development to defense, natural resources, energy, and transportation.

The Northeast-Midwest Institute was formed in 1977 at the request of members of the House and Senate who perceived the need for information and analysis of public policies to identify and further the interests of the region. The Institute seeks to encourage policies that will ease the pressures on and support the continued revitalization of the region's economy. It continually searches for new ideas and legislative options that can help older Northern states overcome their handicaps--such as high energy costs and a deteriorating infrastructure--and prudently develop their many assets, including a highly skilled work force, top quality educational institutions, and abundant natural resources.

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The states in the region served by the three organizations are Connecticut, Delaware, Illinois, Indiana, Iowa, Maine, Maryland, Massachusetts, Michigan, Minnesota, Missouri, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, Vermont, and Wisconsin.

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Preface

This report is the result of a project funded by the Glenmede Trust Company to analyze the need for low-income energy assistance and identify effective state and local programs. The Conservation Company of Philadelphia worked with the Northeast-Midwest Institute to survey and evaluate innovative state low-income programs.

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The authors wish to dedicate this report to the memory of Sister Pat Kelly, founder and long-time director of the Missouri Energy Care/Dollar Help and chair of the National Fuel Funds Network. She helped keep the human side of the issue at the forefront.

The estimates of heating and cooling costs in the report are figures calculated by the staff of the Northeast-Midwest Institute, based on information provided by the Office of Energy Assistance, U.S. Department of Health and Human Services. The U.S. Department of Health and Human Services is not responsible for the validity of the estimates.

For further information on this project, please contact Diane De Vaul, project director, Northeast-Midwest Institute, 218 D Street, S.E., Washington, D.C. 20003, (202) 544-5200, or Clifford Pearlman, attorney-at-law, The Conservation Company, Suite 1390, One Penn Center at Suburban Station Building, Philadelphia, Pennsylvania 19103, (215) 568-0399.

1. Energy Programs for the Poor

Many poor families in this country are threatened with the loss of their home heating and other basic utility services because they cannot afford to pay their bills.[1] For many impoverished households, the combination of personal income and assistance payments is not enough to ensure even a reasonable lower standard of living.[2] As a visible result, the nation's poor experience a high level of pain, stress, and homelessness.

One of the necessities which the poor must too often go without is adequate utility service. Much has been learned in recent years about households at risk of utility shutoff. In many cases, those in need are not impoverished permanently.[3] Circumstances such as loss of work due to a plant closing or dissolution of a marriage result in a temporary need for help in meeting budgets. In certain locales, however, poverty may be a more permanent condition for a significant number of families.[4] Regardless of individual circumstances, when incomes are at or near the poverty level--about $11,000 for a family of four--bills go unpaid.

At least part of the dilemma lies with the fact that payments from income-transfer programs (poverty programs) have lagged behind increases in the cost of living.[5] Energy assistance programs, which cover one vital component of the household budget, are a prime example of this phenomenon. These programs developed in response to major increases in energy prices during the 1970s--the large jump in oil prices in 1973 and 1974 and again in 1979, the rise in natural gas prices after federal deregulation legislation in 1978, and rising electricity prices throughout the period.[6]

Energy assistance programs have never received enough funding to compensate fully for the impact of price increases on low-income budgets.[7] The difference between poor households' ability to pay for energy costs and federal help was large in 1980 and grew quickly. By 1984, this "gap" was estimated at $3.6 billion; it was at least that large in 1987.[8] This report attempts to define this very serious problem. It reviews efforts over the past decade to close the gap and describes those programs and approaches that supplement and/or use federal funds most effectively. It also analyzes in detail the main federal energy assistance program, LIHEAP, and efforts to weatherize poor people's homes.

Federal Support

The impact of energy prices on the poor has been a matter of public discussion since the first oil crisis in 1973. Despite the media attention and some federal response, the problem actually has become worse. Rising energy prices caused heating and cooling costs for federally eligible low-income families to increase from an estimated $3.4 billion in 1979 to $10.1 billion in 1986. Costs fell slightly to $9.4 billion in 1987. Federal funding as a percent of eligible costs fell precipitously from an estimated 40.1 percent in 1980 to 19.5 percent in 1987. (See the analysis in Chapter 2.)

However, with a generally improved national economy and oil prices below $1 per gallon, energy no longer commands national attention. Concern with the federal budget deficit has diminished the level of federal allocations to low-income energy programs. Pressures on this traditional source of funding, the ongoing transfer of social welfare responsibilities to the states, and the traditional role of state governments in regulating utilities, have led to a shift in activity from the national to state and local levels.

State Resources

The transfer of the social "safety net" to the states has not been accompanied by larger federal grants or authority to combine program funds for more effective delivery of needed services. States do control some funds, however, that could be used for program initiatives.

State legislatures have the one-time opportunity to spend several billion dollars from court settlements to support energy assistance and conservation programs.[9] Several state regulatory commissions have begun to require that utilities spend a portion of their revenues on energy conservation programs targeted to low-income households. Finally, a number of technological and program innovations are being tested at the local level, with the voluntary involvement of households and community service organizations.[10] Chapters 3, 4, and 5 discuss ways to make use of these resources.

Design of Assistance Programs

Two principal issues are major determinants in the design of low-income assistance programs. One issue is whether poor people have a "right" to utility service, regardless of their ability to pay in full for billed usage.[11] Such rights are not immutable: they are created, modified, and ended by legislatures, regulatory bodies, and court decisions. They are shaped through the push and pull of political forces and through adaptation to specific factual situations. However, a "right to heat" has gradually taken hold as an assumption behind many programs, although nowhere is it not a statutory right.

As the energy costs incurred by poor people continue to mount and assistance covers less, the pressure to require them to assume greater responsibility for service increases. Payment-troubled families may be required to pay a specified percentage of their income in return for guaranteed utility service. They may be encouraged to accept mechanically limited energy use in lieu of utility disconnection. States increasingly must confront under what conditions and what limits their citizens have a right to heat.

The second determinant in program design involves the sociology of poverty. Policymakers must take differing situations into account: those of people needing help only for a short period of time, from time to time, or more or less permanently. Programs have to be adapted to varied and complex local environments.

The "Right to Basic Utility Services"

Federal energy assistance programs began more than a decade ago. Like its predecessors, the Low-Income Home Energy Assistance Program (LIHEAP) provides economic assistance to the consumer but does not affect the market relationship between consumer and seller. The tacit agreement seems to be "pay for what is used through a combination of public and household resources and service will continues." (If not, in time the utility will shut off service.) However, in some states regulatory commissions and state legislatures have intervened in this area, making adjustments to the rights and responsibilities of consumers and regulated utilities, setting conditions on both.

The first trend, which remains dominant, is to protect consumers (before the seller can end the relationship) by increasing the responsibilities of utilities. Examples include winter and hardship moratoria on termination of service and expanded customer service programs to address individual situations on a one-to-one basis.[12] These regulatory measures generally are based on assumption that most households facing loss of service are only temporarily in that situation and that "softening" the payment obligation is an appropriate solution.

More recently, states have tended to reconsider and frequently reaffirm the reciprocal obligations between the low-income consumer and the regulated utility. ("Pay for what is used and service will continue.") These conditions are determined by political bargaining rather than in the economic marketplace: those regulatory measures that authorize forgiveness of past arrearages so long as current bills are paid in full, for example. Such "guaranteed service" or "percentage of income" programs acknowledge that the payment for current usage is a condition of continued service.

The Nature of Poverty

Public and private assistance policies of the past decade have reflected three distinct phases in assumptions about poverty and its relationship to home energy costs.

Solutions to a Temporary Crisis. Policymakers based their first round of efforts on the premise that poverty was essentially a homogeneous and stable phenomenon. They saw the energy price shocks of the late 1970s, plus a general economic recession undermining, the marginal stability of low-income families. Federal energy assistance programs, hardship funds initiated by private charities and the utilities, and regulatory commission mandates in the period through 1982 reflected the policy that the appropriate intervention was to stem the crisis and restore "stability" to the household.

So, for example, the assistance programs administered by the federal Community Services Administration through 1979 by regulation provided families with "one-time" crisis intervention as a last resort, after negotiation with utility and fuel companies had failed to avoid shutoff.[13] Similarly, regulatory bodies adopted protections against termination of service during cold weather. They assumed that problems would disappear during the warmer months, when the household would catch up on past due bills (accepting the fact of higher rates and adjusting its budget accordingly), or when the wage earner returned to work after a temporary layoff.

A Permanent "Underclass." More recently, public debate has dealt with the needs of an "underclass": the historically poor, the dependent elderly, the intergenerational welfare family. There are strongly held, highly divergent views on who is in this presumed underclass, and why they are in this predicament.[14] Early experience with utility delinquency and with energy assistance programs itself seemed to confirm that such a group was at the core of the poverty problem. Presumably it had relatively fixed dimensions and characteristics--literally the same people from year to year, and probably much poorer than previously assumed. If there were any dynamic, it was an enlargement of the underclass by more social and economic dislocation--the feminization of poverty and displacement of workers, for example.

This perception of an underclass inspired several studies about the size of the energy gap,[15] as well as some of the boldest approaches to energy assistance, including percentage of income programs[16] and mass weatherization projects.[17] At about the same time, the concept of "crisis" became hazy and no longer provided a firm theoretical basis for energy assistance. Private funders tired of the crisis orientation, and the LIHEAP Crisis Program was criticized for actually inducing or encouraging a short-sighted outlook, i.e. households deliberately going to the brink of shutoff in order to obtain greater financial help.[18]

A Complex and Varied Problem. Today poverty and need appear more complex and more dynamic than ever before. An underclass does exist in some localities; recent studies suggest that the very poorest of the poor are untouched by any assistance, including traditional income supports, public housing, or LIHEAP.[19] Where such conditions exist, help of an extensive and more long-term nature will be required. In other situations, poor people need help over a shorter term, until they generate sufficient financial resources on their own. The responses of federal and state governments, utilities, and private charities rest, to varying degrees, on current views of the "right to basic utility services" and the nature of poverty in the nation and in particular states and localities.

Key Issues for Policymakers

Both public and private institutions have to confront the difficult questions posed by the fact of people who are unable to pay their utility bills and the humane need to provide a basic level of comfort regardless of ability to pay.

- Through what programs can the nation's poor be assured basic utility services?
- Who will provide both the financial and managerial resources necessary to accomplish the desired goals?
- What roles should be played by federal and state governments, state energy assistance offices, utilities, and other energy providers, and by philanthropies, social service agencies, and community groups?
- What, if any, are fair requests to make of assisted households in exchange for assurance of service?

These institutions have to find solutions at a time of major changes in policies and markets:

- responsibility for social welfare issues continues to shift from federal to state and local governments;
- the private sector--utilities and other energy-service companies, corporate giving programs and private foundations--are pressed to address human services needs previously regarded as within the purview of government;
- the energy market continues to evolve--with deregulation having visible impact on prices in the short run, uncertain impact on long-term energy supplies, and a less obvious effect on the share of utility fixed costs borne by residential consumers;[20]
- more is learned about the benefits (and limits) of home weatherization measures and other technological innovations; and
- debate increases over who is poor and why individuals do, or do not, long remain in that situation.[21]

In preparing this report, the authors examined the history and current operations of all federal and state government energy programs and paid careful attention to programs controlled at the local level. They considered demographic information about the nature of poverty both at the national level and in particular locales. They surveyed the variety of programs initiated and supported by the nation's utilities and energy-service companies. They also reviewed efforts to address the bill-paying and conservation needs of low-income households by state regulatory bodies, charitable organizations, and community-based nonprofit organizations.

The research led to several conclusions, which will appear in the discussion.

- Although it is generally agreed that individuals and families in this country have a right to basic utility services, states are reexamining and modifying the circumstances under which they have this right.
- Federal energy assistance is essential for the millions of families unable to afford the market price of home heating and cooling.
- Federal funding for energy assistance must be increased to an adequate level. Immediate efforts must be made to avoid proposed reductions in funding.
- Regardless of the outcome of the federal government's best efforts, it must find other sources of public and private help and must identify the most effective conservation measures to narrow the gap between the cost of essential home energy and available household resources.
- The resources of state and local governments, utilities, philanthropic sources, and consumers are limited. It is not possible to provide unlimited assistance regardless of energy usage, nor is it wise to appear to encourage unnecessary consumption. Accordingly, assisted

households may be asked fairly to take appropriate actions to reduce the amount of energy they use. Assistance programs may fairly place a limit on the amount of consumption paid for with public funds or in some manner borne by other residential consumers.

- The design of state and local assistance programs necessarily will vary by jurisdiction. What is appropriate in one locale may not be the best approach in another because of demographics, management capacity or budget constraints.

Informal and public exchanges among government officials, regulators, energy providers and consumer advocates have increased greatly since work on this report began;[22] it is hoped this report will add context and substance to those discussions, document the need for continuing federal energy assistance programs with adequate funding, and bring to national attention some noteworthy state and local initiatives.

Notes to Chapter 1

1. National Association of Regulatory Utility Commissions, Survey of Electric and Natural Gas Utility Uncollectible Accounts and Service Disconnections for 1984 (Washington, D.C., October 1985). Recent data available show, for example, almost 195,000 service disconnections among the seven largest utility service territories in the Mid-Atlantic region alone.

2. National Consumer Law Center, Evaluation of the Wisconsin Gas Company's Proposal for a Guaranteed Service Plan (Boston, Mass., 1985), Part II, pp. 37A-47A. The Bureau of Labor Statistics' lower living standard budget for a 3-person Milwaukee household, adjusted for inflation to 1983, was found to be $722 higher than 151 percent of the poverty level, making a household ineligible for energy assistance.

3. National Consumer Law Center, Evaluation of the Wisconsin Gas Company's Proposal, Part I, p. 31, referring to an analysis by the Wisconsin Department of Human and Social Services, which indicated that only 15.9 percent of Low-Income Home Energy Assistance recipients were enrolled in the program for three out of four years from 1981 through 1984, and that only 13.7 percent were enrolled for all four years. See also Greg J. Duncan and Richard D. Coe, Years of Poverty, Years of Plenty (Ann Arbor, Mich., University of Michigan, 1983) based on the Michigan Panel Study of Family Income. That study followed 5,000 representative families for 10 years. It found that although 25 percent were in poverty at some point during the decade, only 8 percent needed public assistance in any one year--half of these because of an immediate crisis--and less than 1 percent persisted in poverty at least eight out of ten years.

4. See The Conservation Company for The Energy/Poverty Task Force, The Home Heating Needs of Low Income Households in Philadelphia: Dimensions of a Persistent Problem (Philadelphia, Pa., 1983).

5. Ibid., p. 35.

6. See Kenneth Manaster, "Energy Equity for the Poor: The Search for Fairness in Federal Energy Assistance Policy," Harvard Environmental Law Review, vol. 7 no. 2 (1983), p. 371.

7. The current Low Income Home Energy Assistance Program was first authorized as part of the Crude Oil Windfall Profits Tax. It was assumed by many that tax receipts would provide funding for the energy assistance program. Final legislation, however, had no such link. The legislation authorized program funding at a level of $3.115 billion for fiscal 1981; however, actual appropriations for that year were $1.85 billion, and have never exceeded $2.1 billion. See also, Committee for Economic Development, Energy Prices and Public Policy (New York, N.Y.: Committee for Economic Development, 1982).

8. Calculations based on state-eligible households' total energy expenditures are from Economic Opportunity Research Institute and the Grier Partnership, Low-Income Energy Programs at Mid-Decade: Limits and Opportunities (Arlington, Va.: National Association for State Community Services Programs, June 1986), pp. 2-3.

9. U.S. v. Exxon Corp., 561 F. Supp. 816 (D.D.C. 1983), aff'd 773 F. 2nd 1240 (TECA 1985), cert. den 88 L. Ed. 9261 (January 27, 1986), ordered the distribution of amounts charged in violation of federal petroleum pricing regulations, together with interest, to the states. Distribution was pro rata in accordance with the state's share of refined petroleum products consumed during the period 1973-1981. Approximately $2 billion of distributed funds have to be used pursuant to program and procedural requirements of the Warner Amendment, Section 155 Pub. L. No. 97-377, (1982). The settlement of In Re Department of Energy Stripper Well Exemption Litigation, 578 F. Supp. 586 (D. Kan. 1983), which has been extended to apply to all funds controlled by the Department of Energy as a result of prior settlements and to all future settlements of crude oil price regulations, will result in an estimated $2.5-billion distribution to the states, subject to a much broader set of requirements than the Exxon funds. These funds may be used for the Warner Amendment programs or in the same manner of prior oil overcharge fund distributions. All subject to the requirement that an "equitable share" is to be used for low-income programs after consulting with low-income groups.

10. See the discussion of the Gas Research Institute's Critical Needs Program being tested in Philadelphia and Pittsburgh with the participation of the Pennsylvania Governor's Energy Council, National Center for Appropriate Technology, and Energy Coordinating Agency of Philadelphia in Chapter 6.

11. In our analysis, the term "right" is used in its legal (rather than social) sense. That is, if no other party has the lawful ability to terminate service regardless of household action, one would say the household has an "unconditional right." If service is assured provided the household meets certain conditions, it would be more accurate to say there was a "conditional right." See Wesley Newcomb Hohfeld, Fundamental Legal Conceptions (New Haven, Conn.: (Yale University Press, 1919).

12. For example, American Gas Association, The A.G.A. Gas Industry Manual on Fuel Subsidies and Innovative Energy Efficiency Programs and Edison Electric Institute, Energy Assistance Programs for Low Income Customers.

13. See regulations for the Emergency Energy Conservation Services (EECS) program operated by the Community Services Administration:

> The long range goal is to conserve energy and lessen the impact of the high cost of fuel for poor people, particularly through programs to increase the thermal efficiency of their dwellings. . . . The program also would cover "emergency cases calling for programs of crisis intervention to restore utility service or prevent cutoff, provide emergency fuel deliveries or support other activities to assist those suffering serious hardships which endanger their health . . . ." 40. Fed. Reg. 31.603.

14. See note 21, below.

15. See note 3, supra.

16. See Wisconsin Gas Company, "Wisconsin Gas Guaranteed Service Plan," 1983; "Proposal for Michigan Energy Assurance Program," September 1983; Minnesota Governor's Task Force, "Report on Utility Shut-Offs," November 1983.

17. See The Conservation Company, "A Residential Energy Efficiency Plan for Philadelphia," (Philadelphia, Pa., 1982). Michigan's Public Service Commission staff structured what was probably the most sweeping, statewide weatherization plan of that period since scaled back in practice. See proposed Michigan Energy Assurance Program.

18. See the remarks of Shirley Marcus, Chair, National Association of Energy Assistance Directors, in an address to the Region II Roundtable (December 1985), calling for greater attention to long-range planning, to curb the tendency of both agencies and poor households to think in terms of short-term "crisis management."

19. See Economic Opportunity Research Institute, Low Income Energy Programs at Mid-Decade, pp. 10-16.

20. See "Natural Gas Industry is Learning Marketing," Wall Street Journal, July 16, 1986, p. 6; "Electric Utilities Told of Need to Meet Radical Change," Philadelphia Inquirer, June 3, 1986, p. 2-E; "Oil's Plunge Drags Gas Down," New York Times, May 23, 1986, p. D1.

21. See Charles Murray, Losing Ground: American Social Policy 1950-1980 (New York, N.Y.: Basic Books, 1984); Greg J. Duncan and Richard D. Coe, Years of Poverty, Years of Plenty; "Welfare: Promoting Poverty or Progress," Wall Street Journal, May 15, 1985, p. 30; Sara McLanahan et al., Losing Ground: A Critique (Madison, Wis.: University of Wisconsin, Institute for Research on Poverty, 1985); David Ellwood and Lawrence Summers, "Is Welfare Really the Problem," The Public Interest, no. 83 (Spring 1986), p. 57; and Charles Murray, "No, Welfare Isn't Really The Problem," The Public Interest, no. 84 (Summer 1986), p. 3.

22. As examples, the National Association of Fuel Funds held its first annual meeting in Philadelphia, Pa., on April 11-12, 1985, and the federal Department of Health and Human Services convened a roundtable on coordination of Energy Assistance in August 1985. This was followed by a series of five regional roundtable sponsored by the newly formed National Association of Energy Assistance Directors (NEADA), and NEADA and LIHEAP National Conferences in San Francisco (May 1986).

2. Federal Support for Low-Income Energy Programs

In the 1970s, the federal government began to assume some responsibility for helping the poor meet increasingly high bills for heating and (in some cases) cooling brought about by geopolitical changes and domestic energy policies. Congress attempted to deal with the problems as early as 1973 by establishing the Low-Income Weatherization Assistance program when evidence mounted that the poor often lived in badly insulated housing. Congress also set up a small program in the 1970s to respond to emergency situations where life and health were threatened. In 1980, Congress set up a low-income energy assistance program to regularize the payment of a portion of home energy costs for "eligible low-income families."

This chapter takes up these programs in turn, analyzing their goals, operations, and effectiveness in helping low-income Americans. It includes figures on the extent of the energy problem in the years they are available and the best estimates of the need and coverage for the years for which precise data are not available. It also presents two case studies that typify the plight of poor families in different geographical areas. Weatherization programs are discussed in detail in Chapter 6.

Background of Energy Assistance Programs

During the 1970s, world oil prices soared to unprecedented heights. At the same time, the federal government began to deregulate entire sectors and industries, including energy. The easing of controls on oil and gas producers resulted in an immediate rise in prices. The impact was most severe, of course, on those least able to pay. Crisis assistance was inadequate to meet the overwhelming need of poor families trying to pay substantially higher energy bills out of fixed or meager incomes.

The media highlighted the grim reality of higher energy costs for these households with heat turned off, no lights, and people huddled together in the middle of winter. For the elderly, high energy bills competed food, medical treatment, and prescription drugs. Such stories reminded policy makers that energy is a basic necessity for survival. Many low-income households could not afford to maintain all their utilities in the price structure that prevailed after decontrol.

For decades, much of the U.S. economy operated on the assumption that energy was cheap, abundant, and in reliable supply. U.S. industries, homes, even cities were built without regard to thermal efficiency. By the time of the energy crisis, it was clear that holding down the price of energy had contributed to continuation of lower efficiency standards in building construction, in the manufacturing and use of appliances, and in living habits. The poor were penalized twice: many lived in older, lower-quality buildings and lacked the money to weatherize them. Their housing tended to waste energy and fall into disrepair, resulting in higher energy costs. In addition, many poor families rented their dwellings. As energy costs increased, landlords often were reluctant to invest in conservation

improvements. Recognizing these problems, Congress appropriated more funds for the weatherization program. (See Appendix A for a legislative history of this program.)

When President Jimmy Carter proposed decontrolling oil prices, he persuaded Congress to pass the Windfall Profits Tax of 1980, which captured some of the excess profits reaped by domestic oil producers and established the Low-Income Energy Assistance Program (LIEAP).[1] Its primary goal was to make essential energy affordable for the poor and to prevent anyone from freezing or dying of heat exhaustion. The program set up a state block grant mechanism to help low-income families pay utility bills. LIEAP became the Low-Income Home Energy Assistance Program, LIHEAP, with its reauthorization in 1981.

States design their own programs within the broad outlines of federal provisions administered by the Department of Health and Human Services (HHS). Most provide eligible households with one check for their heating/cooling bills. States determine eligibility and level of support payments with complex formulas that rank such factors as size of family, type of energy use, type of home, level of income, and number of heating/cooling degree days in the recipient's area. The intent is to give larger payments to those most in need. Most states provide payments on a first-come, first-served basis until funds run out. Some states reserve a portion of their allotments for crisis assistance, usually to prevent utility shutoffs or to provide for emergency fuel oil deliveries. In addition, states have the discretion to use some of their funds for weatherization projects, to transfer funds to another block grant program, or to carry over funds to the next year.

When LIHEAP was first established, analysts attempted to measure the effect of fuel-price increases on the poor by determining the percent of a family's income that was necessary to cover basic utility bills. HHS data show that since 1981, low-income households have paid 14 to 15 percent of their incomes, on average, for home energy while total U.S. households have averaged 4 to 5 percent.

Congress never officially established what level of energy costs were manageable for a poor family, or what level of assistance the federal government should provide. Nevertheless, the Fuel Marketing Advisory Committee set up to advise the Department of Energy on the implementation of an energy-assistance program assumed that no family should have to pay more than 10 percent of its income on energy.[2] The ideal federal program would have reduced the energy burden to this level, but Congress declined to set standards for assistance levels. It also excluded anything but "essential" energy from coverage: electricity needed for lighting and running appliances or fuel for cooking and heating water. Members of Congress showed concern over the cost of an all-inclusive program and with the possibility of subsidizing nonessential energy use.

With oil prices falling in the 1980s and the federal deficit growing past $200 billion, Congress did not allow LIHEAP appropriations to rise much past the original 1980 level of $1.6 billion. Program advocates in Congress, consumer groups, church groups, and others, however, continually pointed out that utilities were shutting off service to more and more households because of unpaid bills. This situation, they argued, put the health and safety of many people at risk. Unpaid utility bills also made evictions more likely, which many people claimed added to the ranks of the homeless.

Unfortunately, no agency has made a systematic attempt to track the level of federal funding relative to need, which creates difficulties for those trying to determine whether or not appropriations are adequate. Because Congress has not stated any specific goal for the program, analysis has to rest on examination of the "gap" between poor peoples' resources (available household income plus federal energy payments) and their energy needs (heating/cooling plus other utility costs). The adequacy of federal help must be judged on its coverage of total essential household energy costs, not simply on LHIEAP coverage. Some kind of fuel for cooking and electricity for lights are essential (especially for furnaces with electric starters). Most housing units are constructed such that several utility payments are necessary to maintain basic services.

Ideally, federal agencies would collect enough data to allow analysts to calculate the income levels of eligible households, heating/cooling payments, and the total amount of their energy expenditures, thereby determining the extent of the gap between resources and need. Policymakers then would have a benchmark against which to measure the adequacy of support. The goal of federal energy-assistance policy should be to reduce this gap to a level that the poor can manage or to eliminate it altogether. The necessary data could and should be gathered but is not at present.

The rest of this discussion examines the four factors that have shaped federal energy assistance: changes in energy prices, the rise in numbers of families eligible for help, federal funding from 1980 to the present, and the relative income levels of the poor. They show how federal funding has declined dramatically relative to need and the principal reasons for that decline.

U.S. Energy Policy and Prices

Following World War II, oil and gas became the nation's primary energy sources. U.S. energy policy echoed the theme, "use as much as you want, pay as little as possible."[3] Events of the 1970s changed that theme dramatically. Declining U.S. oil and gas production set the stage for the 1973-1974 OPEC oil embargo, which quadrupled oil prices and set off a worldwide recession.[4] Oil prices doubled again in 1979 as a result of the revolution in Iran.

U.S. per capita real income had doubled between 1950 and 1970, while energy prices had fallen in real terms by 28 percent.[5] Nevertheless, the sudden rise in prices caused concern to government and consumers alike. Conflict over oil and gas pricing dominated energy policy issues in Congress in the 1970s. The federal government controlled most oil prices after 1971 with wage and price controls,[6] and the Energy Policy and Conservation Act of 1975 extended oil price controls through late 1981. The 1938 Natural Gas Act established the government's pricing authority over natural gas. The imposition of domestic price controls cushioned the impact of world price hikes on consumers, but contributed to the nation's slow adjustment to permanently higher energy costs.

Congress also began to grapple with the need to deregulate certain sectors of the economy and some basic industries to encourage efficiency, competition, and responsiveness to market demands. By the mid-1970s, deregulation of

airlines, trucking, and railroads was well underway, with telecommunications soon to follow.

Advocates of oil and gas price deregulation in the private and public sectors prevailed on Congress to act. It decontrolled oil and gas prices knowing that the low-income population would be affected adversely. Advocates convinced Congress that energy policy decisions should be based solely on energy considerations, and that their impact on the poor should be dealt with as a related but separate policy issue. Holding the price of oil and gas at artifically low levels distorted the marketplace, they claimed, and compounded the problem of adjustment to more costly supplies.

The impact of these two developments on energy prices appears in Table 1. Heating oil prices were 428 percent higher in 1985 than in 1973; natural gas was 371 percent higher, and electricity was 208 percent higher.

Income and the Expansion of Poverty

During this period of rapid price increases, more and more families found that their incomes would not cover basic bills. The federal government bases the income level used to define poverty on the cost of a market basket of food necessary to sustain a family multiplied by three. This income level rose by only 142 percent between 1973 and 1985, from $4,540 to $10,989 (see Figure 1 and Table 2).

Table 1
Increases in Residential Fuel Prices, 1973-1985
(in dollars per million BTU)

Year	Fuel Oil	Percent Increase	Natural Gas	Percent Increase	Electricity	Percent Increase
1973	1.44	-	1.26	-	7.43	-
1974	2.44	69	1.39	10	9.09	21
1975	2.60	81	1.67	33	10.30	37
1976	2.77	92	1.95	55	10.93	45
1977	3.11	116	2.30	83	11.90	58
1978	3.52	144	2.53	101	12.61	67
1979	5.08	253	2.93	133	13.59	80
1980	7.01	387	3.59	185	15.70	108
1981	8.61	498	4.17	231	18.15	141
1982	8.37	481	5.05	301	20.07	167
1983	7.79	441	5.88	367	21.00	179
1984[1]	7.87	447	5.93	371	22.12	194
1985[1]	7.60	428	5.93	371	22.85	208

SOURCES: Northeast-Midwest Institute staff calculations based on U.S. Department of Energy, Energy Information Administration, State Energy Price and Expenditures Report, 1970-1982 (Washington, D.C., April 1985), p. 4; and Monthly Energy Review, October 1986 (Washington, D.C., February 10, 1987).

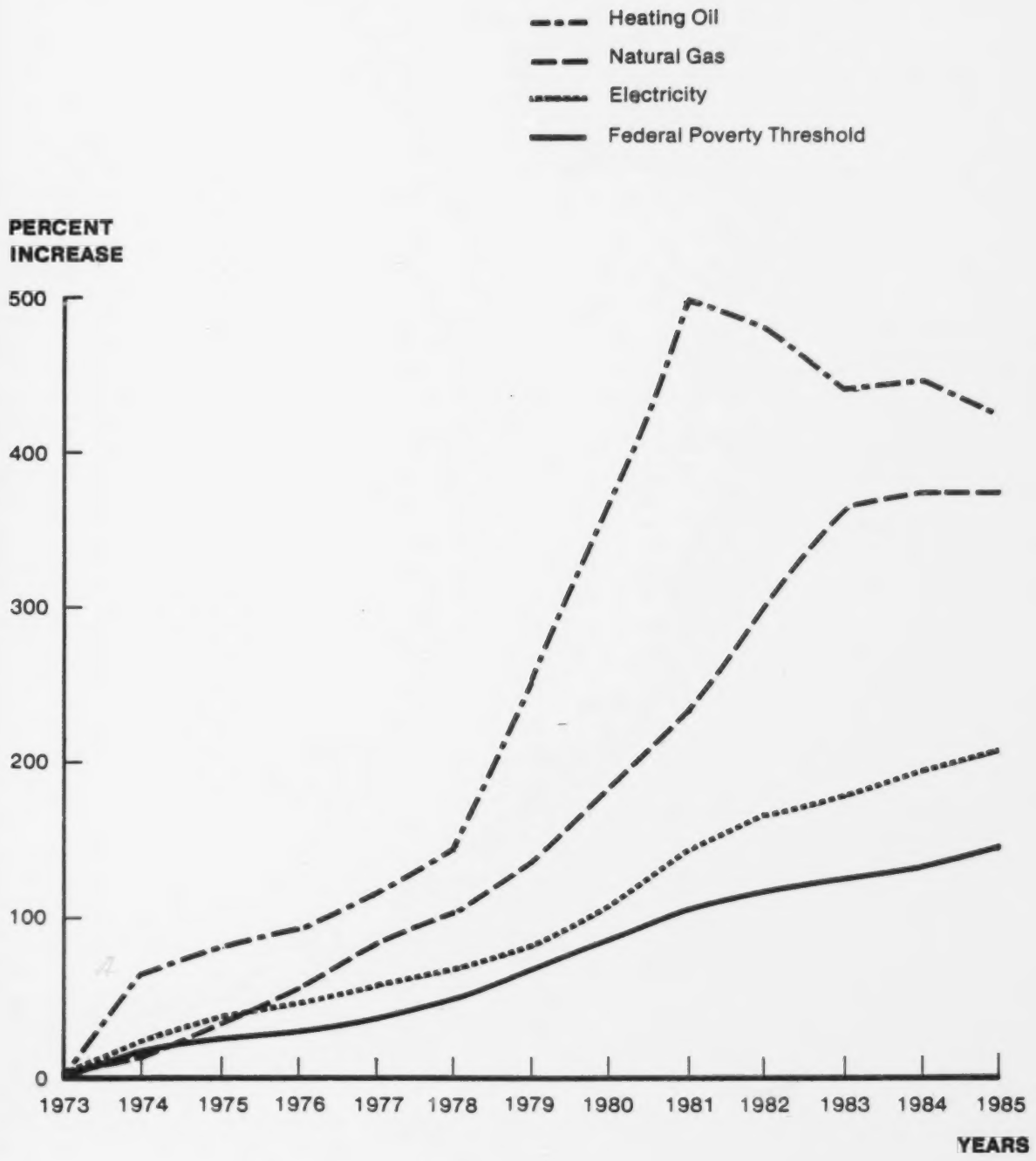

Figure 1. Percent Increase in Energy Prices and Federal Poverty Threshold, 1973–1985

Table 2
Federal Weighted Average Poverty Guidelines[1]
for a Family of Four, 1973-1985

Year	Income (in dollars)	Percent Increase
1973	4,540	-
1974	5,038	11
1975	5,500	21
1976	5,815	28
1977	6,191	36
1978	6,662	47
1979	7,412	63
1980	8,414	85
1981	9,287	15
1982	9,862	117
1983	10,178	124
1984	10,609	134
1985	10,989	142

[1]Poverty income guidelines are used as an eligibility criterion for a number of federal programs. They are a simplified version of poverty thresholds used by the Bureau of the Census to prepare its statistical estimates of the number of persons and families in poverty.

SOURCES: U.S. Department of Commerce, Bureau of the Census, Statistical Abstract of the United States, 1984 (Washington, D.C., December 1985), p. 471; and telephone interview, Bureau of Census, May 1986.

Numbers of people in poverty grew both in absolute terms and as a percent of total population during this period. About 23 million people lived in poverty in 1973. That number crept up to 24.5 million in 1978, then jumped to 35.5 million in 1983 before declining slightly. In 1978, 11.4 percent of the population was poor; in 1985, poverty reached 14.0 percent (see Table 3).

Eligibility Requirements

Two factors caused the numbers of households eligible for assistance to almost double (under federal criteria) between 1980 and 1986. First, as noted above, the number of families below the poverty threshold guidelines increased. Second, Congress changed the federal eligibility criteria twice, in 1981 and 1982, to include more people. To qualify for federal assistance in 1980, a family's income had to fall below 125 percent of the poverty threshold. By 1982, eligibility had expanded to include recipients of AFDC, SSI, food stamps, certain need-tested veteran's benefits, and those with incomes below either 150 percent of the federal poverty threshold or 60 percent of a state's median income (whichever was greater). In 1980, 12.6 million households were federally eligible; in 1985 an estimated 23.4 million were eligible (see Table 4).

Table 3
Persons Below the Federal Poverty Level, 1972-1985

Year	Number in Poverty (in millions)	Percent of Total U.S. Population
1973	23.0	11.1
1974	23.4	11.2
1975	25.9	12.3
1976	25.0	11.8
1977	24.7	11.6
1978	24.5	11.4
1979	26.1	11.7
1980	29.3	13.0
1981	31.8	14.0
1982	34.4	15.0
1983	35.5	15.3
1984	33.7	14.4
1985	33.1	14.0

SOURCES: U.S. Department of Commerce, Bureau of Census, Statistical Abstract of the United States, 1984 (Washington, D.C., December 1985), p. 471; and Thomas Gabe, Progress Against Poverty (1959-1985) and the Poverty Debate (Washington, D.C.: Congressional Research Service, September 15, 1986), pp. 5-6.

Table 4
Number of Low-Income Households Eligible
for LIHEAP Payments in 1980 and 1985

Region and State	1980	1985[1]	1985[2]
New England			
Connecticut	115,100	203,380	227,603
Maine	70,160	95,420	106,785
Massachusetts	275,300	455,960	510,265
New Hampshire	38,600	61,060	68,332
Rhode Island	52,660	76,340	85,432
Vermont	28,420	37,560	42,033
Total	580,240	929,720	1,040,450
Mid-Atlantic			
Delaware	29,140	41,800	50,604
Maryland	171,940	301,000	364,396
New Jersey	311,660	562,720	746,400
New York	1,069,600	1,502,600	1,993,070
Pennsylvania	602,960	901,520	1,195,789
Total	2,185,300	3,309,640	4,350,259
Midwest			
Illinois	544,720	874,040	11,104,433
Indiana	251,880	402,560	508,673
Iowa	146,640	222,580	277,812
Michigan	437,440	745,980	942,617
Minnesota	192,960	341,140	425,793
Ohio	532,060	820,240	1,036,451
Wisconsin	204,820	368,220	465,281
Total	2,310,520	3,774,760	4,761,060
South			
Alabama	321,960	396,640	496,427
Arkansas	207,520	259,560	321,522
District of Columbia	44,680	61,220	74,114
Florida	624,940	899,640	1,089,120
Georgia	385,680	486,700	589,207
Kentucky	278,780	347,480	434,899
Louisiana	319,380	85,760	477,849
Mississippi	235,700	286,660	358,778
North Carolina	396,700	502,300	608,093
Oklahoma	215,860	283,260	350,880
South Carolina	211,620	265,380	321,274
Tennessee	343,920	427,680	535,276
Texas	858,120	1,244,060	1,541,043
Virginia	273,040	417,020	504,852
West Virginia	135,160	173,880	210,502
Total	4,853,060	6,437,240	7,913,836

Table 4 (continued)
Number of Low-Income Households Eligible
for LIHEAP Payments in 1980 and 1985

Region and State	1980	1985[1]	1985[2]
West			
Alaska	20,020	39,040	45,296
Arizona	145,180	226,380	289,095
California	1,107,000	2,068,280	2,399,693
Colorado	132,320	229,220	292,722
Hawaii	43,300	68,200	79,128
Idaho	53,600	71,660	91,512
Kansas	123,420	186,020	232,180
Missouri	302,740	431,300	538,326
Montana	47,340	61,660	78,742
Nebraska	86,040	113,340	141,465
Nevada	33,680	60,880	77,746
New Mexico	90,540	116,720	149,056
North Dakota	36,900	49,340	61,584
Oregon	134,660	229,380	266,135
South Dakota	50,800	64,900	81,005
Utah	57,800	90,700	115,827
Washington	200,680	336,640	390,582
Wyoming	18,480	34,140	43,598
Total	2,684,500	4,477,800	5,373,692
Northeast	2,765,540	4,239,360	5,390,709
Midwest	2,310,520	3,774,760	4,761,060
Northeast and Midwest	5,076,060	8,014,120	10,151,769
South	4,853,060	6,437,240	7,913,836
West	2,684,500	4,477,800	5,373,692
South and West	7,537,560	10,915,040	13,287,528
U.S. Total	12,613,620	18,929,160	23,439,297

[1]Based on 1980 Census.
[2]Based on 1984 estimates at Census Division level.

SOURCES: U.S Department of Health and Human Services, Social Security Administration, Office of Family Assistance, "FY 1986 LIHEAP Allotment Data Base," unpublished data (Washington, D.C., December 30, 1985); Report on the Low Income Home Energy Assistance Program as Requested by the Senate Committee on Appropriations (Washington, D.C., February 25, 1985) p. 54; and Report on the Low Income Home Energy Assistance Program as Requested by the Senate Committee on Appropriations and the Committee on Appropriations of the House of Representatives (Washington, D.C., February 29, 1984), p. 96.

Federal Funding

Insufficient data exists to compare the level of government assistance to the extent of need over the program's history. There simply is no comparable data available that covers the duration of the program. It is possible, however, to illustrate the extent of the problem for low-income households and the trend in federal assistance levels.

The Department of Health and Human Services estimated that eligible low-income families would owe about $10 billion for their heating/cooling consumption in fiscal 1986. The agency based that figure on state-by-state estimates of these expenses it derived in order to allocate LIHEAP funds. That year's federal appropriation, $2.01 billion, covered only 19.9 percent of eligibles' heating/cooling costs (see Table 5 and Figure 2). Heating/cooling expenses make up about 40 percent of eligibles' total home energy costs; they owe much more. When regional ratios of heating/cooling costs are used to calculate total household energy costs, the figure of $22 billion emerges as the amount owed for all utilities. LIHEAP's $2.01 billion comes to a meager 9.4 percent of the estimated amount needed.

The 1986 state-level estimates were the first provided by HHS. They were compiled in order to comply with a congressionally mandated change in the allocation formula passed in 1985. No comparable estimates exist for prior years. However, the HHS database contains estimates of consumption levels by state for each energy type. DOE compiles energy prices by state and type. Using these two sources it is possible to determine comparable energy costs for other years, assuming that poor families' average consumption levels and type of fuel used remained relatively stable from 1980 to 1986.

Heating/cooling expenses of those eligible in 1980 (the first year of LIHEAP funding) are estimated at about $4.0 billion. This figure comes from application of 1979 DOE state-by-state energy prices (used because HHS takes the prior calendar year's energy prices to estimate costs for the next fiscal year). Federal funding in 1980 was $1.6 billion--about 40.1 percent of eligibles' $4.0 billion expenses. Congress changed the income level for federal eligibility from 125 percent of the poverty threshold to 150 percent in 1982, which added more families. Even with this change, national totals for fiscal 1981 to 1985 can be calculated with the same methodology (see Figure 2 and Tables 5 and 6).

Tables 5 and 6 document what Figure 2 indicates more starkly--that the gap between eligible costs and funding assistance began large and grew rapidly. By 1985, the gap was at its widest point, declining slightly by 1987. In the only year for which estimates are reliable, 1984, the gap between home energy costs and state eligible low-income families' resources plus LIHEAP payments was at least $3.6 billion.[7] (This estimate assumes that families paid ten percent of their incomes for energy bills and that all LIHEAP funds went to meet them.)

Table 5
Estimated Heating and Cooling Costs in
Eligible LIHEAP Households in 1980, 1981 and 1986
(in thousands of dollars)

Region and State	1980	1981	1986
New England			
Connecticut	59,086	139,537	173,990
Maine	35,761	65,166	70,577
Massachusetts	130,164	281,755	345,274
New Hampshire	18,024	38,153	42,684
Rhode Island	20,034	41,426	52,735
Vermont	12,228	21,667	24,548
Total	275,297	587,703	709,809
Mid-Atlantic			
Delaware	12,379	23,215	28,933
Maryland	63,405	155,022	194,403
New Jersey	140,641	340,009	418,508
New York	462,390	857,285	1,065,736
Pennsylvania	218,666	414,106	541,511
Total	897,481	1,789,637	2,249,091
Midwest			
Illinois	214,345	414,764	586,607
Indiana	102,390	198,226	263,521
Iowa	58,604	108,026	145,859
Michigan	180,388	375,151	555,578
Minnesota	93,489	205,999	267,886
Ohio	200,084	380,612	550,395
Wisconsin	91,944	209,407	283,328
Total	941,244	1,892,186	2,653,176
South			
Alabama	86,426	120,873	170,054
Arkansas	52,503	80,592	112,499
District of Columbia	13,191	24,958	32,493
Florida	119,035	210,897	305,346
Georgia	89,827	136,589	196,773
Kentucky	72,900	105,012	149,217
Louisiana	71,258	104,620	158,107
Mississippi	60,609	86,983	120,376
North Carolina	125,545	195,986	243,445
Oklahoma	76,123	111,967	155,819
South Carolina	60,099	89,301	115,253
Tennessee	83,447	118,919	166,675
Texas	218,154	358,156	549,269
Virginia	87,887	169,325	201,436
West Virginia	42,170	66,670	90,523
Total	1,260,074	1,980,847	2,767,286

Table 5 (continued)
Estimated Heating and Cooling Costs in
Eligible LIHEAP Households in 1980, 1981 and 1986
(in thousands of dollars)

Region and State	1980	1981	1986
West			
Alaska	13,535	32,634	40,963
Arizona	40,013	70,764	98,063
California	147,074	372,953	574,027
Colorado	36,569	75,766	105,579
Hawaii	0	0	0
Idaho	11,343	18,577	23,785
Kansas	32,532	56,871	87,251
Missouri	106,356	172,160	241,981
Montana	14,862	24,130	32,588
Nebraska	26,680	41,294	59,499
Nevada	9,995	23,892	32,850
New Mexico	26,811	42,018	57,589
North Dakota	13,471	23,101	28,979
Oregon	37,397	81,726	98,647
South Dakota	18,484	29,390	36,323
Utah	19,570	34,838	52,197
Washington	49,587	106,862	151,719
Wyoming	6,741	13,155	19,584
Total	611,020	1,220,133	1,741,623
Northeast	1,172,778	2,377,341	2,958,900
Midwest	941,244	1,892,186	2,653,176
Northeast and Midwest	2,114,022	4,269,526	5,612,075
South	1,260,074	1,980,847	2,767,286
West	611,020	1,220,133	1,741,623
South and West	1,871,094	3,200,980	4,508,909
U.S. Total	3,985,115	7,470,506	10,120,984

SOURCES: Heating and cooling costs based on staff calculations using heating and cooling energy consumption from U.S. Department of Health and Human Services, Office of Family Assistance, FY 1986 LIHEAP Allotment Data Base, unpublished data (Washington, D.C., December 30, 1985); eligible household data from U.S. Department of Health and Human Services, Office of Family Assistance, Report on the Low Income Home Energy Assistance Program as Requested by the Senate Committee on Appropriations and the Committee on Appropriations of the House of Representatives (Washington, D.C., February 29, 1984), p. 96; and state-level residential energy prices for 1979 and 1980 from U.S. Department of Energy, Energy Information Administration, State Energy Price and Expenditure Report, 1970-1982 (Washington, D.C., April 1985).

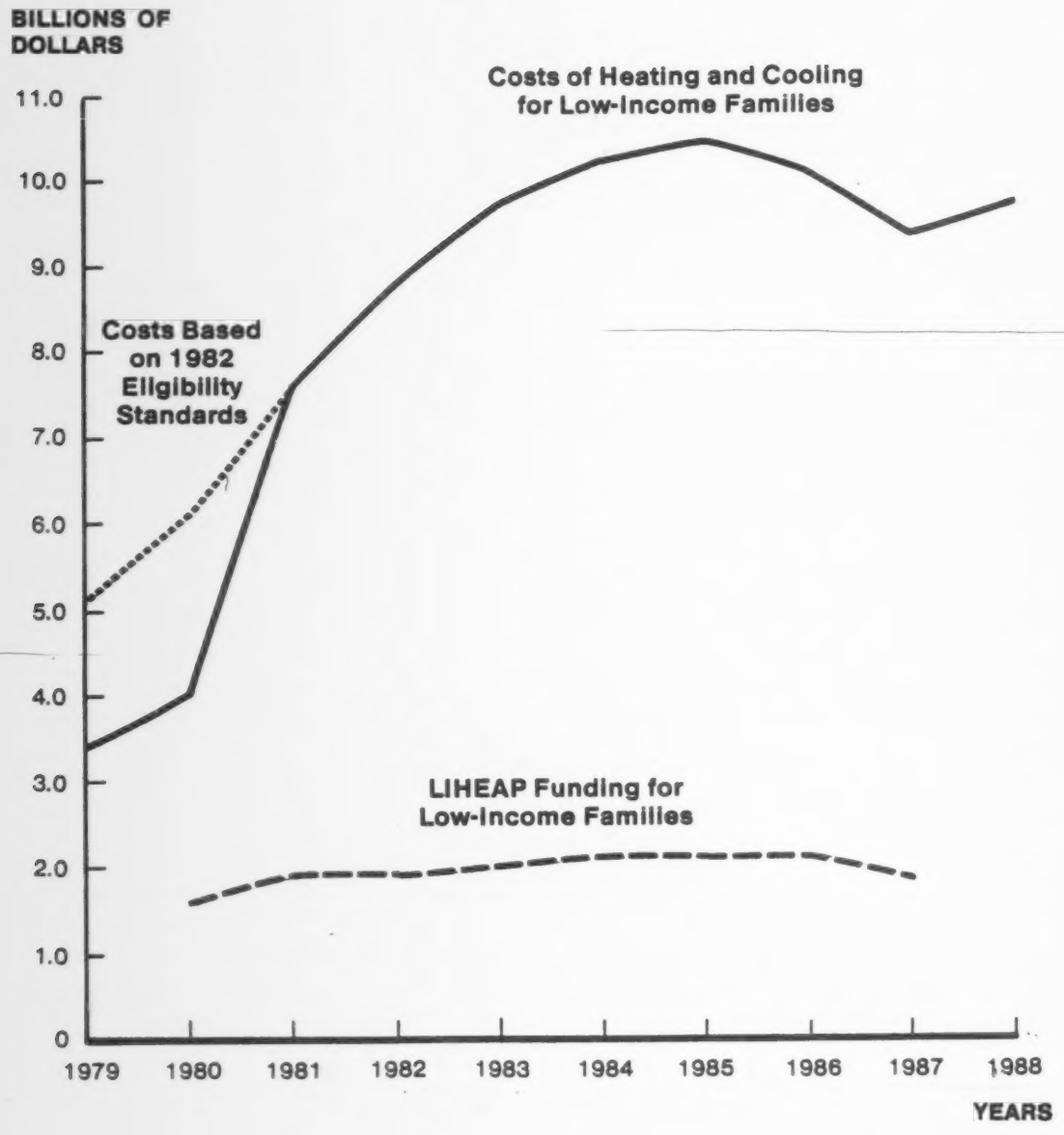

Figure 2. LIHEAP Funding Compared to Approximate Heating and Cooling Costs for the Eligible Poor, 1979–1987

Table 6
LIHEAP Appropriations Compared to
Estimated Heating and Cooling Costs
of Eligible Households

Year	Heating/Cooling Costs (in billions of dollars)	LIHEAP Appropriation (in billions of dollars)	LIHEAP as a Percent of Heating/Cooling Costs
1979	3.35	-	-
1980	3.99	1.60	40.1
1981	7.47	1.85	24.8
1982	8.84	1.88	21.3
1983	9.67	1.93	20.0
1984	10.17	2.08	20.5
1985	10.39	2.10	20.2
1986	10.12	2.01	19.9
1987	9.35	1.82	19.5
1988	9.67	-	-

SOURCES: Northeast-Midwest Institute staff calculations based on U.S. Department of Energy, Energy Information Administration, State Energy Price and Expenditure Report, 1970-1982 and 1983 (Washington, D.C., April 1985 and February 1986); Annual Energy Outlook 1986: With Projections to 2000 (Washington, D.C., February 1987), and unpublished data from the Office of Family Assistance, U.S. Department of Health and Human Services.

Although these approximations of expenditures are rough, they indicate a substantial decline in the percent of eligible households' home energy bills covered by LIEAP/LIHEAP--from 40.1 percent in 1980 to 19.9 percent in 1986. The gap between basic expenditures and assistance grew large in those years and left poor families more at risk because most owed another 60 percent, on average, in other utility bills. Compared to the total home energy burden, federal assistance represented a mere 9.4 percent of these costs.[8]

Energy Costs as a Percent of Income

A stated goal of the federal energy assistance effort is to lower the percent of their income the eligible poor pay for essential energy usage, defined by Congress as home heating and cooling only. Although federal payments reduce the burden of energy costs, they have not lowered it to a manageable amount for most assisted families. Two surveys conducted several years apart confirm this point.

The National Association for State Community Service Programs (NASCSP) conducted a thorough survey of 1984 data. It found that in 1984 the average household eligible for LIHEAP by state standards (generally set lower than federal standards thus excluding more) had an income of $6,184. On average that household spent:

- 44 percent, or $2,692, of its income on housing costs--rent or mortgage payments;
- 35 percent, or $2,192, on food;
- 15 percent, or $942 on home energy; leaving only
- 6 percent, or $355, for remaining expenses, including medical costs, prescription drugs, clothing, housekeeping supplies, and transportation.[9]

The average LIHEAP benefit of $213 represented 3.4 percent of total income for that average household. Although a modest amount, it raised the average discretionary income from $355 to $568.[10]

Unfortunately, data are not available that would allow a comparison with the average household receiving assistance when the program was first funded, which would yield a sense of the effectiveness of the program over time. However, the National Interim Energy Consumption Survey (NIECS) collected energy consumption and household characteristics for the winter of 1978-79 that allows a snapshot comparison. Households with incomes between $3,000 and $5,000 spent an average of $522 for all their home energy--an average of 14 percent of their incomes.[11] In contrast, energy expenditures in households with incomes of $15,000 to $25,000 averaged 4 percent.[12] The State Community Service Program's figures for 1984 are not strictly comparable to those of the NIECS survey because the latter did not identify households based on a percent of federal poverty levels, but rather in terms of income only. The average energy burden of eligibles in 1984 is based on state eligibility criteria, which excludes many eligible under federal standards. However, the figures are telling in that the NIECS households surveyed were among the poorest and had an energy burden of 14 percent, while the average eligible in 1984 had a burden of 15 percent.[13]

The percent of income spent on energy also varies substantially depending on the location of the household; averages therefore hide the severity of the problem for many households. Table 7 shows the percent of their incomes eligible poor families spent on energy by census region and division, showing a range of 11 percent to 30 percent.

Table 7
Energy Costs as a Percent of Eligible Poor Families' Income, 1982-83

Census Region and Division	Median Percentage of Income Spent on Energy	
	Below 100 Poverty	Below 125 Poverty
Northeast	29	25
New England	Q	24
Middle Atlantic	30	25
North Central	22	18
East North Central	22	19
West North Central	19	18
South	20	16
South Atlantic	24	18
East South Central	17	14
West South Central	19	15
West	13	12
Mountain	17	15
Pacific	11	10
U.S. Total	21	17

"Q" - Data withheld because of large variance

SOURCE: U.S. Department of Energy, Energy Information Administration, Consumption and Expenditures, April 1982 Through March 1983, Part 1: National Data (Washington, D.C., November 1984), p. 9.

Effectiveness of LIHEAP Help

Evaluation of LIHEAP, particularly when its funds are so much less than the need, must rest to some extent on its ability to serve those who need it most. A 1984 HHS report containing a detailed examination of eligible versus recipient households reached the disturbing conclusion that LIHEAP is not serving the most needy in too many cases. The average income of LIHEAP recipients that year was about $1,200 higher than that of eligibles.[14] Furthermore, recipients paid one percentage point of household income less for home energy before receiving assistance than did eligibles in all regions of the country.[15]

This study showed that much of the discrepancy results from the fact that of the poorest of the poor, whose energy costs average 42 percent of their income, two-thirds were not enrolled in the program. The study stated:

> The very poor, the elderly, and some households in crisis are those who are in greater need of assistance than the average recipient. Very low income eligibles, households with a history of energy crisis and the physically vulnerable elderly are of deepest concern, for the failure to serve these populations is dramatic and contrary to the stated aims of the program. 2.85 million such households, with average incomes of $2,196, are not served. As a group they have desperately low cash income and high energy burdens and are not typically public housing residents. In fact, 1.8 million of the very poor living in private single family and small multi-family units are not receiving help.[16]

Although the report concluded that the LIHEAP payments were needed desparately by those who received them, many more who were as needy or needier were not getting help. Currently, only about 39 percent of those eligible for LIHEAP payments actually receive them.[17]

Many in Congress have argued for cutting LIHEAP's appropriation because they believe that lower energy prices and oil overcharge funds will make up the difference. However, poor families' eligible expenditures decreased by only 7.5 percent in fiscal 1987 while federal appropriations were cut 11.8 percent. EIA residential energy price projections show that eligible expenditures will rise to $9.7 billion in fiscal 1988.

Congress should restore funding to previous levels and establish a minimum standard of federal assistance to eligible households, rather than allowing appropriations to decline relative to need. Congress also should require the development of aggregate energy cost data annually in order to set realistic standards.

With little additional expense, the Department of Health and Human Services could supply information on average income of eligible households, plus state and national estimates of heating/cooling costs and overall home energy expenditures. Congress should provide extra funds for this data collection, if necessary. The agency could publish average income figures by state; it has to estimate heating/cooling expenditures by state to allocate funds. Computing aggregate household energy costs by state would not be particularly difficult. Prodding Congress into establishing an objective standard for LIHEAP funding is much more difficult, but it can and should be done.

The following case studies illustrate the problem for the poor, the utilities, and government agencies attempting to deal with both. While one study examines a large East Coast city and the other a populous midwestern county, their profiles are not dissimilar.

The Energy Cost Gap in Philadelphia

In 1980 more than one-fifth of all Philadelphians had incomes below the federal poverty standard; by 1983 one in four was poor. In 1986 an estimated 220,000 households in 1986 had incomes below 150 percent of poverty and were eligible for assistance and weatherization.[18] Their average annual cash income was estimated at $5,725.[19] Sixty-five percent used gas heat, almost all the rest heated with oil.[20] The average energy bill for low-income household was $1,495 with gas and $1,340 with oil, representing 26 percent and 23 percent of average income respectively.[21]

LIHEAP assistance for these Philadelphians peaked at $52 million in fiscal 1984 and dropped to $42 million in fiscal 1986. Their total energy costs--for heat and other essential usage--totalled $300 million in 1986.[22] Assuming that low-income households can spend 10 percent of their incomes on energy bills, the gap between costs and resources would have been $138 million in 1985-86.[23]

This figure shows that an enormous jump occurred in three years. In 1983, over 168,000 households below the 150 percent of the poverty level did not live in subsidized housing; the gap between their fuel costs and resources (including ten percent of householders' incomes) was over $37 million.[24] Thus between 1983 and 1985-86, the gap grew by $101 million for this frostbelt city.

A Profile of the Poor and Energy Costs in Milwaukee County, Wisconsin

According to the 1980 census, 67,840 households in Milwaukee County had incomes below the 150 percent of the poverty level required for LIHEAP eligibility.[25] By 1985 their numbers had increased to an estimated 85,530. About 63,806 Milwaukee County residents participated in LIHEAP (74.6 percent of those eligible). About 75 percent fall below the absolute poverty line of about $5,000 in income.[26] One sampling of the LIHEAP-eligible population showed a mean income of $7,490.[27]

About 25 percent of the eligible households were homeowners. Among the renters, "over 40 percent pay for their energy through their rent, according to a study by the National Consumer Law Center (NCLC)."[28] Seventy-eight percent of those eligible heated their homes with gas. The average Wisconsin Gas Co. LIHEAP customer incurred a $1,006 gas bill in 1984.[29] The maximum LIHEAP benefit Wisconsin allowed that year was $295.[30] The average payment of $264 covered just over 25 percent of the gas bill. Thus the average LIHEAP recipient owed another $732, a full 10 percent of the average income, just for gas use.

In 1984, Milwaukee County LIHEAP expenditures came to $13,680,000.[31] "That figure is in contrast with the conservative projection of $53,232,691 in gas bills alone in that year . . . totally leaving out of the equation the 22 percent of low-income households heating with another fuel."[32]

Home energy conditions have not improved. According to NCLC, "since 1978, the gross arrearages on Wisconsin Gas Company's regular ledger . . . have increased by roughly 151 percent, from $7,231,000 to $18,180,000. The increase in the total accounts determined to be uncollectable by the Company is even

more dramatic, increasing 425 percent . . . . The increases on arrearages and uncollectables has similarly led to a substantial increase in disconnections."[33] By 1984, disconnections were 171 percent of the 1979 level. Fifty-seven percent of Wisconsin Gas LIHEAP customers were indebted to the company for an average of $570.[34]

One particularly startling characteristic of the Wisconsin LIHEAP recipients is the low level of repeat participation from year to year. A 1984 analysis found that only 14 percent of LIHEAP enrollers participated in the program every year between 1981 and 1984; 16 percent participated 3 out of 4 years; 25 percent, two years; and 46 percent, only one year.[35] This fact suggests that, in contrast to Philadelphia, Milwaukee's low-income population tends to be relatively fluid, with relatively few households "stuck" in poverty for extended periods.

The need for both assistance and weatherization has grown since 1980, despite the perception that energy prices have fallen and the problem lessened. It is essential that the federal government provide a consistent funding level in relation to need which is adequate to provide essential services. At the same time states increasingly must turn to more effective program design and supplemental funding sources to help meet increased need.

Notes to Chapter 2

1. The Windfall Profits Tax of 1980 established a Low-Income Energy Assistance Program to alleviate the impact of higher prices on the poor. The purposes of the act reflected congressional concern and were stated as follows:

> The Congress finds that:
>
> (1) recent dramatic increases in the cost of primary energy sources have caused corresponding sharp increases in the cost of home energy;
>
> (2) reliable data projections show that the cost of home energy will continue to climb at excessive rates;
>
> (3) the cost of essential home energy imposes a disproportionately larger burden on fixed-income, lower income, and lower middle income households and the rising cost of such energy is beyond the control of such households;
>
> (4) fixed income, lower income, and lower middle income households should be protected from disproportionately adverse effects on their income resulting from national energy policy;
>
> (5) adequate home heating is a necessary aspect of shelter and the lack of home heating poses a threat to life, health, and safety;
>
> (6) adequate home cooling is necessary for certain individuals to avoid a threat to life, health, and safety;
>
> (7) low-income households often lack access to energy supplies because of the structure of home energy distribution systems and prevailing credit practices; and
>
> (8) assistance to households in meeting the burden of rising energy costs is insufficient from existing state and Federal sources.
>
> It is the purpose of this title to make grants to States to provide assistance to eligible households to offset the rising costs of home energy that are excessive in relation to household income.

U.S. Congress, U.S. Code: Congressional and Administrative News, Volume 1, 96th Congress, Second Session, 1980 Laws, (St. Paul, Minn.: West Publishing Company, 1981), p. 94 STAT 288.

2. U.S. Department of Energy, Fuel Oil Marketing Advisory Committee, Low-Income Energy Assistance Programs: A Profile of Need and Policy Options, (Washington, D.C., July 1980), p. 31.

3. Congressional Quarterly, Inc., Energy Policy, Second Edition, (Washington, D.C., 1981), p. 1.

4. Ibid., p. 23.

5. Ibid., p. 7.

6. Ibid., p. 45.

7. Staff calculation based on Economic Opportunity Research Institute and the Grier Partnership, Low Income Energy Programs at Mid-Decade: Limits and Opportunities (Arlington, Va.: National Association for State Community Services Programs, June 1986), p. 3.

8. The figure was calculated by Institute staff using the ratio of heating costs to home energy expenditures by census region published in U.S. Department of Health and Human Services, Office of Family Asssistance, Low-Income Home Energy Assistance Program: Report to Congress for Fiscal Year 1985 (Washington, D.C., July 22, 1986), pp. 26-27, times the state total low-income heating costs published in "FY 1986 LIHEAP Allotment Data Base," unpublished data (Washington, D.C., December 1980).

9. Economic Opportunity Research Institute and the Grier Partnership, Low Income Energy Programs at Mid-Decade, p. C-20.

10. Ibid., p. C-21.

11. Hans H. Landsberg, editor, High Energy Costs: Assessing the Burden (Washington, D.C.: Resources for the Future, 1982), p. 11.

12. Ibid., p. 13.

13. Ibid., p. 11.

14. Economic Opportunity Research Institute, Low Income Energy Programs at Mid-Decade, p. 16.

15. Ibid.

16. Ibid., p. 21.

17. Ibid., p. C-23.

18. Energy Coordinating Agency of Philadelphia, Utility Emergency Services Fund, 1986 Progress Report: Energy and Poverty in Philadelphia (Philadelphia, Pa., October 15, 1986), p. 13.

19. Ibid.

20. Ibid., p. 15.

21. Ibid., p. 17.

22. Ibid., p. 3.

23. Ibid., p. 19.

24. Ibid., p. 10.

25. Charles E. Hill, Howard Fox, and George Sterzinger, Evaluation of Wisconsin Gas Company's Proposal for a Guaranteed Service Plan, Part II (Washington, D.C.: National Consumer Law Center, November 29, 1985), p. 18.

26. Ibid., p. 19.

27. Ibid., p. 46.

28. Ibid., p. 7.

29. Ibid., p. 46.

30. Ibid., p. 47.

31. Ibid., p. 37.

32. Ibid.

33. Ibid., p. 38.

34. Ibid., p. 44.

35. Ibid., pp. 30-31.

3. Energy Assistance from State and Private Sources

The federal LIHEAP program, now the subject of administration budget-cutting efforts, provides over 90 percent of all energy assistance to low-income households. LIHEAP funding has declined, not only in absolute terms since its 1985 peak, but also relative to energy prices and the demand for assistance.

Most Philadelphia LIHEAP recipients, for example, saw their energy costs rise over 50 percent between 1979 and 1986 in spite of their LIHEAP grants and the recent fall in fuel oil and natural gas prices. In fact, electricity prices went up dramatically, while the size of their grants went down.[1]

In the race to cut federal spending and reduce "welfare dependency," the energy assistance program unfortunately has been an easy target. This chapter examines the prospects for state funding schemes and additional funding from other sources and reviews current models for making the most of resources already committed.

State Funding for Energy Payments

State appropriations and indirect support provide over $250 million in payment assistance. These efforts are a most important step toward bringing home energy costs within the reach of poor households in several cold states and offer needed flexibility in others. Many states are developing comprehensive programs to address the range of needs of poor households, including outreach efforts, basic and crisis payment assistance, and large-scale, targeted weatherization efforts. Some states, including Minnesota, Wisconsin, Illinois, Rhode Island, Ohio, Michigan, and Utah, also have created task forces to work on the problems of utility delinquency and shut-offs

However, a number of states have not yet committed any of their own funds to closing the "gap." Moreover, most states have shown a preference for investments in conservation rather than in payment assistance, despite continuing pressure for state appropriations and the availability of oil overcharge funds. The uncertainty of continued federal support for the Weatherization Assistance Program has reinforced this trend.

State appropriations from general revenues sources currently add over $216 million to cash assistance resources available nationally. This total is skewed by the hefty contributions of Massachusetts ($17 million), New Jersey ($75 million, from Atlantic City casino revenues), Ohio ($40 million), and Michigan ($73.7 million). New Jersey's contribution amounts to nearly half, and the Michigan contribution more than one-third, of the state-administered energy-assistance resources. Together these four states are the source of 95 percent of all state dollars; Connecticut ($4 million), Indiana ($5 million) and Colorado ($8 million) add the rest.[2]

States provide resources for energy assistance in other ways. New York pays about $100 million of state funds and federal welfare dollars to utilities and fuel suppliers on behalf of public assistance clients and those facing cutoff. West Virginia utilities give low-income customers a 20 percent discount and are reimbursed through a corresponding credit against state taxes. The state recently extended this unobtrusive form of assistance to telephone utilities. Utah contributes to regional fuel funds for families facing imminent shutoff.

Twenty-seven states match federal Emergency Assistance program (EAP) funds on a dollar-for-dollar basis to avert crises for families with minor children. Massachusetts, for example, has provided several million dollars of energy crisis assistance through this program.

State-funded programs can be tailored to local priorities more easily than the less flexible federal program. Several state programs (New Jersey, Ohio, Colorado, and Connecticut) target the elderly and disabled. Some are designed to reach households in need with incomes slightly higher than the LIHEAP ceiling (e.g. Massachusetts, New Jersey), while others provide supplemental benefits to participants at the lower end of the income scale (New York, West Virginia, and Michigan).

Other state programs bridge administrative and funding gaps in the LIHEAP program. For example, Connecticut provides emergency grants for households awaiting a LIHEAP determination, Indiana provides funding and extends the program after federal funds run out, and New Hampshire provides funds to aid those facing end-of-moratorium shutoffs.

In Michigan, a comprehensive Energy Assurance Program includes generous state allocations, about equal to other state and federal funds (including LIHEAP), to support a set of targeted programs: a basic supplement and a crisis program for welfare clients, plus a tax-credit program for other limited-income households. An executive committee composed of four state departments (Energy, Labor, Social Services, Aging) and the Public Service Commission meets frequently to monitor the program.

The Future of State Funding

It is not likely that additional states will join the list of current contributors in the near future, despite efforts by consumer and utility interests. Responses by 13 representative LIHEAP programs to a 1986 General Accounting Office survey disclosed that none expected to receive state funds to replace federal funds lost under Gramm-Rudman-Hollings budget cuts.[3]

Increased funding deserves serious attention from state governments for several reasons. Funds from state coffers spread the burden of helping the poor among taxpayers more fairly, and they usually are collected through a progressive income tax, rather than from ratepayers "taxed" in proportion to their own consumption through utility rates. The current interest in percentage of income plans (PIP) in several states raises the issue of securing state funding to cover any gap between participant contributions and federal assistance allocations (see the discussion in the next section).

Consumer advocates have identified various "pots" of state money that might be applied to energy assistance such as utility gross-receipts taxes, new

sales taxes on non-transportation fuels, and proceeds from the sale of unclaimed property that escheats to states, but so far without success.

Oil overcharge settlements are far and away the most significant source of energy assistance--over $5 billion nationally, some of which states will spend to help low-income households. Some states plan to hold in trust a portion of the extra dollars to compensate for future losses of federal energy-assistance funding, or to supplement other resources under a PIP.[4]

On the other hand, states appear to be more interested in using their oil overcharge windfall either to expand weatherization efforts or at least to protect the program against the uncertainty of future federal funding. Non-profit organizations and several community foundations have designed projects using oil overcharge dollars in popular weatherization/jobs programs and demonstrations--often with matching funds from the very oil companies paying restitution under the court settlement![5]

It would seem that state funding for payment assistance has reached a plateau, although the general concept of state "responsibility" (as shown by the creation of statewide task forces) has gained ground. Highly targeted, relatively small and controllable payment-assistance programs, leveraged with EAP or private dollars, may yet win the support of states and even local jurisdictions.

Private Funding for Energy Payments

Fuel funds and private charitable assistance possess the virtues of community involvement, rapid response, and flexibility. They never have made a large dent in the problem, however, and are not necessarily growing. Utilities are a promising source of payment assistance through targeted discounts, subsidies, and arrearage-forgiveness programs. However, the tendency of these providers to redistribute the low-income energy burden to other ratepayers suggests that their programs be carefully tailored to local conditions and reviewed for effectiveness.

Fuel Funds

Fuel funds are essentially specialized private charities which solicit contributions from utility ratepayers and the general public to provide grants for needy customers. Most were organized by utilities between 1980 and 1983, although a few operate as independent nonprofit organizations with diversified funding. The combined contribution of about 85 fuel funds is $25 to $35 million annually--less than 2 percent of all payment assistance.[6] Their role has not changed significantly in recent years.

Fuel funds provide a flexible, locally controlled response to families in crisis who have exhausted all public sources of help and still cannot manage their bills, whose need is sudden or extraordinary, or who may "fall through the cracks" of their state's requirements for assistance. The funds are generally administered by broad-purpose public or private social service agencies working under contract.

The Baltimore Fuel Fund is perhaps the oldest and one of the largest. Organized by City Councilwoman Victorine Q. Adams in 1979, the Fund pays up to

$125 to clients facing shut off and gives utility credits towards the arrearage. Baltimore Gas and Electric Company matches each $2 of nongovernmental monies from the Fund with another dollar credited to the customer's account. The total must be sufficient to continue or restore services. Clients of the Fund contribute some portion themselves and may raise small amounts from other community charities. The utility also matches these contributions. The Fund's early success spawned a metropolitan fundraising umbrella, Fuel Fund, Inc., comprising the Baltimore Fund and similar agencies in nearby suburban counties.

The independent Utility Emergency Services Fund of Philadelphia serves customers of three utilities, Philadelphia Gas Works, Philadelphia Electric Company, and the Philadelphia Water Department. The Fund is one of the few to receive local government support--several hundred thousand dollars of Community Development Block Grant funds.

It is difficult to discern an overall trend in the demand for fuel fund assistance or in the ability and/or willingness of existing organizations to meet the level of demand. It probably depends to the greatest extent on the local economic environment.

Several established fuel funds have experienced difficulty in maintaining the initial enthusiasm and financial commitment over the years. For some, the drop in funding has been severe; they simply have accepted serving fewer clients than before. Others, such as the fund managed by New York state's large Niagara-Mohawk Power, have begun to educate themselves in sophisticated marketing techniques or to employ development experts, often with excellent results.

Recently there has been some pressure to consolidate fuel funds over ever-wider geographical areas, up to statewide coverage. Consolidation presents some advantages in terms of widening the fund-raising base, control of administrative costs, convenience and equal access for potential recipients. "Going regional" does, however, challenge the original concept of a neighborly or good corporate-citizen bond with the community. A few fuel funds--including Philadelphia's Utility Emergency Services Fund--have ventured beyond payment assistance to mobilize weatherization and educational services for their clients.

Special channels or organizations at the community level offer critical assistance for specific groups. In Baltimore, the Steelworker's Union worked with a local utility to provide fuel assistance for laid-off workers. The Cancer Society in Washington, D.C. pays fuel bills for cancer victims.

In Chicago, Philadelphia, and Indianapolis, private foundations responded to the economic downturns of the late 1970s and early 1980s with substantial funding for basic human needs. The aid was delivered under the auspices of organized religious organizations (denominational or interfaith) and social-service and community-action agencies. The community response was especially significant at that time. It provided very real help to many families with a minimum of delay and red tape, right in their own neighborhoods. Such action made a strong public statement about the impact of the recession and government spending cuts on poor and near-poor households.

Volunteerism has acquired new status as a kind of official philosophy at the national level. However, it must be recognized that charitable resources cannot do the whole job, particularly in settings of widespread poverty and dislocation. Many foundations and churches first mobilized to stem a "shut-off" crisis and later sought to join forces with other funders of payment assistance (as in fuel funds). Eventually, these organizations began to develop long-range solutions to utility-delinquency problems.

For instance, Philadelphia foundations have broadened their funding efforts beyond the area of emergency cash assistance to community-based education and weatherization efforts aimed at longer-term relief for households in need. Other foundations appear to have developed a strong interest in and support for longer-range solutions to the energy/poverty problem.

In Kansas City, Missouri, local energy assistance has become part of a comprehensive response to emergency needs and the prevention of homelessness. The Mid America Assistance Coalition (MAAC) resulted from a 1985 merger of two umbrella organizations, the Emergency Assistance Coalition (1979) and the Warmth and Light Coalition (1977). MAAC operates a hot-line that responds to 36,000 calls a year for emergency aid of all kinds (food, rent, clothing, utilities), operates a computerized file of recipients and the full scope of their needs, provides management and training services to a host of churches and small grassroots organizations, and administers utility assistance dollars on behalf of three private and one public source of funding. The organization participates in local planning to meet emergency needs.

Utilities and Fuel Oil Dealers

Fuel providers increasingly are regarded as logical private partners (together with the federal government) to help resolve the energy crisis of the poor. A growing awareness of the tangible benefits energy suppliers reap from the federal energy assistance program has supported this view.

In recent years, the American Gas Association and the Edison Electric Institute have adopted formal positions with respect to the roles and responsibilities of their members.[7] A number of major fuel suppliers now offer some form of systematic assistance to their own low-income or low-income/delinquent customers, as a result of mandates, "leveraging," or enlightened self-interest.

It is difficult to predict the future of this trend. With voluntary programs, the utility itself is in the position of deciding upon a rational policy on behalf of its stockholders or ratepayers and in relation to its particular market position. Factors in the immediate operating environment--especially the magnitude, intractability, and visibility of delinquency--play a part in determining a utility's decision. In other cases, the fuel vendor may be under a mandate to provide the assistance, possibly as a condition of its participation in LIHEAP. In this case the assistance is said to be "leveraged" with public funds. New York has used a related technique of charging interest on LIHEAP funds disbursed to utilities but not yet credited to the customer's account.

In general, assistance from energy suppliers takes the forms of discounted rates, subsidized service, and arrearage forgiveness. The following are some

leading models of reduced-price mechanisms offered either by utilities or fuel oil dealers:

Discounted Rates

Utilities may charge lower rates to special populations. Philadelphia Gas Works' Elderly Discount Program provides for a 20 percent reduction (the 1986 average was $128) in gas bills for all customers 62 years old and older, whether or not they are low income. Other ratepayers foot the bill of about $14 million a year.

Until recently, the suppliers of unregulated, nonutility fuels--home heating oil, LP gas, coal, and wood--rarely have been visible in efforts to address problems posed by low-income customers. This lack of involvement is especially serious in the Northeast and Middle Atlantic states where oil is a relatively common heating fuel. Many agencies are exploring opportunities to involve the petroleum sector.

Programs exist to supplant the dealers entirely with cooperative or public operation of oil businesses for qualified consumers defined as low-income. The Citizens Energy Corporation in Massachusetts has a unique approach to providing lower-cost heating oil. The nonprofit corporation purchases spot-market oil in Venezuela, refines it in the Caribbean, and sells it in bulk to the state for resale to LIHEAP participants at roughly one-half the retail price.

Oil-buying cooperatives have become popular in many areas. Group purchasing programs and cooperatives offer consumers the opportunity to realize significant savings in the purchase of home heating oil. Operators see greater opportunity for low-income consumer involvement in these endeavors. For example, Buyers Up is a cooperative program with 12,000 members in six states who purchase heating oil generally at a fixed mark-up above wholesale prices. Membership fees are $5 for low-income households and $15 for others. Program planners, however, estimate that not more than 20 percent of current members are low-income; other programs, such as Philadelphia's Energy Cooperative Association operate through community groups, churches, and other organizations to provide both members and employees with a 7 to 10-cent discount below retail price. This co-op also tends to reach middle-income households.

Another approach requires something of fuel dealers, i.e. lower prices, in exchange for the benefits--quantity sales and lump-sum payment in advance--they derive from participation in the LIHEAP program. In Maryland, dealers are required to sell heating oil and kerosene bought with LIHEAP vendor payments at a 10-percent discount. A few dealers opted not to participate in the LIHEAP program when this innovative form of "leveraging" with public dollars was introduced as a pilot in Baltimore. Most low-income households were served by dealers who did accept the quid pro quo. State officials consider the discount policy a success and are now extending it to the entire state. In effect, providers and users of nonutility fuels will share in cross-subsidizing needy consumers, just as utilities and utility ratepayers now do. New Hampshire is exploring a similar program model.

Lifeline Rates

A utility "lifeline rate" is a lower unit price for the first block (or "tier") of service to ensure that a minimum quantity of energy is affordable

for low-income people who are willing and able to limit their usage. Relatively few states have adopted this model so far. Advocates of the poor, the regulatory agencies, and the utility industry cannot agree on which classes of customers actually benefit and which are harmed by lifeline rates.[8]

A lifeline rate for low-income customers only ("targeted life-line") has not fared much better. Madison, Wisconsin, set up a targeted lifeline for all utilities but abandoned it after four years when the program could not secure participation despite a large and expensive outreach effort. In California, recent sharp increases in electricity prices have placed a heavy burden on lower-tier ratepayers. The state's Public Utility Commission is considering conversion from its current blanket lifeline to a targeted lifeline model.

Subsidized Service

A number of utilities, mindful of the special circumstances in their service territory, have begun to experiment with special assistance programs of subsidized service. Begun as a pilot in January 1985, Philadelphia Electric Company's Customer Assistance Program (CAP) provides a monthly subsidy and arrearage forgiveness for payment-troubled customers with verified need. The customer must pay a fixed amount, which is set at an affordable level for that individual each month. (This payment may be as low as $2; $32 is the median.) The company assures customers of continued service in exchange for payment of the fixed amount, efforts to limit unnecessary consumption, and a limitation on nonessential expenditures.[9]

CAP is an alternative to the conventional range of collection and customer-service practices, which usually are not effective with customers in chronic poverty. CAP is a voluntary program. Its appeal, both to its sponsor and to the utilities and regulatory communities, rests on the fact that it offers utilities greater control and predictability than percentage of income programs, while presenting a similar "frontal attack" on the underlying problem. However, this is also a costly and demanding solution. This type of program is probably justified (if at all) only for large utilities situated where the inability-to-pay problem is severe and ongoing.

An administratively simpler version is Pennelec in Johnstown, Pennsylvania, which is also called the Customer Assistance Program. It provides six months' renewable supply of coupons worth $50 each toward the payment of electric bills. The program is designated for needy customers who have made a "good faith effort" to cope with bills in the past. Certification of need is performed by outside social service agencies.

Arrearage Forgiveness

Even with substantial assistance, a family may remain at risk of shutoff due to a previous accumulation of debt. Outstanding balances of $1,000 have become common. Utilities may conclude that if other ratepayers will eventually pay for bad debts, it is more rational to prevent shutoffs by forgiving part of the arrearage in cases of need.[10] Some utilities are experimenting with arrearage forgiveness in conjunction with other programs for payment-troubled customers.

This is the case with Philadelphia Electric's CAP, for instance, and with the program recently begun by Wisconsin Gas Company (see the discussion in the

next section). Arrearage forgiveness is always conditional on faithful payment of some amount by the customer and to some degree (in CAP) on conservation achievements.

The utility industry is taking a hard look at the pilot efforts now in progress. Depending on the majority viewpoint, other utilities may decide to become involved in discount, direct subsidy, and arrearage-forgiveness programs for their low-income customers. The electric industry may be prime territory for some of these new customer-service initiatives. Many areas of the country are experiencing electricity price shocks comparable to the sharp oil and gas price increases several years ago--but now without the cushion of public energy assistance, most of which is already needed and committed to heating subsidies.

Utility-based assistance programs are likely to spring up only in certain settings and, at best, will bypass large numbers of low-income households. As with other resources for payment assistance, the outlook for increases in provider or rate-based contributions is not great. According to a report by the Economic Opportunity Research Center,

> major low-income assistance programs paid for through utility rates inevitably involve a cross-subsidy from one set of consumers to another. . . . Conservation programs . . . can, at least in part, be justified as a legitimate expenditure of ratepayer resources given the desire to minimize the need for utility capital investment. Large scale energy (payment) assistance programs . . . on the other hand, cannot be justified on the same grounds. . . .[11]

Several states have set up comprehensive programs to assure their low-income residents of utility coverage despite their financial condition. By combining a requirement for customers to pay some percent of income each month toward bills and a guarantee of service, states hope to ensure utility service delivery to the poor and reduce the number of uncollectible bills. These PIPs are in various stages of implementation throughout the country. The next chapter discusses them in depth because:

- they vary substantially in design and are administratively complex;
- they could, if successful, provide a solution to an increasingly difficult problem--finding a way to ensure that poor families receive essential energy services; and
- they may represent a sizable source of supplemental funding at a time when need has far outstripped federal resources.

Notes to Chapter 3

1. Energy Coordinating Agency of Philadelphia and Utility Emergency Services Fund, 1986 Progress Report: Energy and Poverty in Philadelphia (Philadelphia, Pa., 1986), p. 17.

2. National Consumer Law Center, State Contributions to Energy Assistance, (Boston, Mass., 1986) and Economic Opportunity Research Institute and Grier Partnership, Low Income Energy Programs at Mid-Decade: Limits and Opportunities (Arlington, Va.: National Association for State Community Service Programs, 1986), p. 5 and Fig. 2.

3. U.S. General Accounting Office, Low Income Energy Assistance: State Responses to 1984 Amendments, GAO/HRD-86-92 (Washington, D.C., May 1986), p. 13.

4. National Consumer Law Center, The Percentage of Income Plan Approach to Unpaid Heating Bills (Boston, Mass., 1987).

5. K. Hallahan and Arlie Schardt, "A Special Kind of Energy," Foundation News, vol. 27, no. 5 (September/October 1986), p. 48.

6. Estimate of the Conservation Company based on a telephone survey of fuel funds in June, 1985.

7. American Gas Association, Providing Essential Energy Services to Low-Income Customers: A Workable Model (Arlington, Va., 1985), and Edison Electric Institute, The Inability to Pay Dilemma: Are New Responses Needed? (Washington, D.C., 1985).

8. See for example J.B. Roll and E.B. Lande, "Lifeline Rates: Impact and Significance," and P. Canan and M. Hennessy, "In Defense of Lifeline Rates," Public Utilities Fortnightly, July 31, 1980 and Nov. 5, 1981, respectively.

9. The Conservation Company, Evaluation of Philadelphia Electric Company's Customer Assistance Program (Philadelphia, Pa., 1987), pp. IV-4.

10. Comments of J. Surrett, Senior Public Policy Analyst, Pacific Power and Light Co., Portland, Oregon, to the National Energy Assistance Directors Association, Northwest Roundtable, January 1986.

11. Economic Opportunity Research Institute, Low Income Energy Programs, pp. 35-36.

4. Percentage of Income Programs

PIPs have been proposed as a way to assure a participating low-income household of continued utility service so long as the household pays a certain percentage of its income for those services. The first widely considered suggestion for a PIP program came from a utility, Wisconsin Gas Company, in 1982. The Milwaukee-based utility proposed to the Wisconsin Public Service Commission to offer a percentage of income program for its low-income customers. A task force was set up to study the idea. After a report by the National Consumer Law Center, the recommendations of the Wisconsin Low Income Energy Task Force were implemented on a pilot basis in one urban and one rural county in the winter of 1986-87.

Subsequent to the original Wisconsin Gas proposal, the concept was picked up by a number of task forces that had been formed in various states to consider solutions to the low-income energy assistance problem. An Ad Hoc Task Force in Michigan and a Governor's Task Force in Minnesota soon issued reports calling for percentage of income programs in their states. The Michigan proposal evolved into something less than a true PIP, while the Minnesota 3roposal resulted in a two-county pilot program.

Regulatory commissions in Ohio and Illinois developed PIP programs when they saw a dramatic increase in the number of utility customers faced with the risk of shutoff. A program has operated in Ohio since the winter of 1983-84 under Public Utility Commission order. A legislatively mandated program with a three-year sunset provision began in Illinois in 1985.

A pilot PIP program was implemented in Rhode Island at the direction of the governor's office in 1986. This order followed a study by the National Consumer Law Center under contract with the Public Utility Commission, which in 1987 approved a mechanism for utilities to recover costs associated with the program.

These programs fall into two distinct categories: those that focus primarily on utility collection efforts (in Ohio and Illinois) and all others currently under consideration, which involve the distribution of low-income energy assistance funds. Several key features vary by program: the size of household payments, including the use of a sliding versus a fixed percentage-of-income scale; the treatment of preenrollment arrearages; the presence or absence of a "cap" on consumption (a maximum usage in dollars or units of energy) that will be covered by the program; and tie-ins to state or utility-run weatherization programs.

Utility-Based Programs

Key to a collection-oriented ("utility-based") PIP is the prohibition against disconnecting service to persons who regularly pay a certain portion of their income toward energy costs. In effect, utilities do not shut off service to collect any portion of the shortfall--the amount by which the bill exceeds the payment. This plan does not, however, spare the customer from other

collection efforts. Other than requiring a household to qualify for LIHEAP, the program operates independently of energy assistance programs. It does not redistribute LIHEAP funds and makes no effort--beyond what is provided for in the state LIHEAP plan--to consider the size of a household's energy bill when calculating LIHEAP benefit levels.

The Ohio proposal resulted from a shutoff crisis prior to the 1982-1983 heating season. With an estimated 40,000 households facing the heating season without utility service, the governor directed utilities to reconnect the affected households and the Public Utility Commission to develop a regulatory response to the shutoff problem. After nearly a year of deliberations, the commission adopted what it termed a PIP, which required eligible households to pay no more than 15 percent of monthly income toward regulated utility service.

The Illinois PIP was adopted by the legislature in 1986 and, while modeled after the Ohio program, requires total household contributions for utilities of no more than 12 percent of income. In both states, poor households make payments to providers of primary heating services and secondary (non-heating) services, but a higher level of payment is required for heating bills. In Illinois, the household payment of 12 percent has 8 percent earmarked for heating and 4 percent for secondary service. In Ohio, the primary/secondary split is 10 percent/5 percent.

Because of the serious consequences of default under a PIP, the programs give poor families a way to cure missed payments. In Ohio, a customer can repair the default for a given month by paying either the amount of the missed payment or $250, whichever is less. In Illinois, the customer who defaults must be reinstated to the program upon payment of all amounts due. The Illinois program, however, does place a limit of two reinstatements in any 12-month period.

Even when making all required monthly payments, poor households may continue to accumulate arrearages equal to any shortfall. While not eliminating them, the Ohio and the Illinois PIP programs seek to minimize ongoing arrears. Both try to recover at least part of the winter shortfall during the following warm weather months by requiring a customer to pay the greater of the percentage of income payment or the actual non-heating-season bill. They intended that, at worst, customers will not accumulate further arrearages, and that, at best, customers will pay back all or part of the winter shortfall. However, despite these efforts to minimize arrears, the utility-based PIP model does not address conceptually the ongoing accumulation of customer debt. Households remain fully liable for all of their consumption at all times. Both programs require low-income customers to pay a higher percent of income than the 10 percent set by the Fuel Oil Advisory Committee as a desired limit for a poor family.

The Ohio and Illinois PIPs also fail to include remedies for the arrearages that customers had when they enrolled in the program. In other words, a household may not enter the PIP program "even"; it may owe significant back bills. While the programs prevent the collection of these preenrollment arrearages through the threat of shutoffs, they make no effort to help eliminate the arrears, either through payment or forgiveness. The consequences of these program features are discussed below.

LIHEAP-Based Programs

LIHEAP-based PIPs aim for a more effective distribution of energy-assistance benefits. Their efforts are integrated into the total LIHEAP program. A participating household's payment to the utility is a certain portion of income due every month; the shortfall (up to some maximum) is paid by LIHEAP and perhaps other energy assistance funds. Wisconsin and Rhode Island have developed the most comprehensive LIHEAP-based PIP pilots. In both cases, the percentage of income payment varies in accordance with a matrix reflecting household income and household size.

LIHEAP-based PIPs limit poor families' home energy liability to a predetermined percentage of income. Funds from LIHEAP (perhaps supplemented by other sources) make up the difference between the household payments and the billed consumption. Assistance levels of such households are determined by the extent to which their bills exceed the designated percentage-of-income payment.

As with the utility-based plan, households are required to make equal, regular monthly payments based upon a percentage of their income to maintain participation. If the payment levels are reasonable, this PIP combines a sensitivity to the financial realities of low-income households with the proven benefits of monthly payment plans.

This type of a PIP also involves the amortization or forgiveness of the preenrollment arrearages of a household over a reasonable period of time. As discussed below, this provision is important to the success of any PIP endeavor. The obligation to make payments on preenrollment arrearages would destroy the basic concept underlying a PIP, i.e., to limit a household's obligation to a predetermined level of income.

An Evaluation of the Two Approaches

Assuming that a PIP is financially feasible for a particular state and that household payment levels are set at reasonable amounts, most observers believe that the LIHEAP-based program is the better of the two for several reasons. Both types of PIP are designed to meet ongoing problems faced by public utilities and their customers created by poverty, dislocation, and other social ills. Their primary effect is in helping low-income households meet their home energy bills, thus maintaining utility service. Utilities have an additional benefit: revenues previously foregone as bad debt are reduced, with a resulting increase in net revenues. Because bad debts are passed through to other ratepayers, PIPs lower the possibility of rate increases to make up the differences.

Both types of PIPs, if properly funded, can limit poor families' energy payments to some reasonable percentage of their incomes. PIPs can offer more consumer protection than do traditional shutoff protections such as winter shutoff moratoria. Through a PIP, state policymakers can address the fundamental question of the "affordability" of energy.

Success depends both on the limitation of monthly percentage of income payments to reasonable levels and on the receipt of subsidies to cover shortfalls. The mere existence of a PIP, however, does not necessarily make home energy "affordable" to the poor. In Wisconsin, for example, analysis

shows that the LIHEAP-based program reduces energy burdens to about 11 percent of household income. In contrast, calculations for Rhode Island suggest that a similar program would require a payment equal to 5 percent of household income. Preliminary analysis of data in Pennsylvania indicate a required payment closer to the Wisconsin figure. Programs aiming to reduce household energy burdens any further would need significant commitment of funds above the current level of LIHEAP allocations.

Whatever the level of benefits, a PIP should do more than simply provide benefits to the low-income ratepayer. If properly designed, the programs also can create a scheme that encourages customer payment responsibilities. This is done by requiring an eligible household to make regular monthly payments at a specified level in order to participate.

In addition to increased collections or arrearage preventions, a PIP can also help to target weatherization and housing rehabilitation funds to households in particular need of help. The level of PIP assistance is a function of the level of household energy usage. As a result, a PIP will identify households whose energy usage results in bills that significantly exceed the required percentage of income payments. A state can thus choose to target priority energy-conservation assistance to these high-usage households. This targeting helps:

- the low-income households in making their energy bills more manageable;
- the utility and its ratepayers in bringing about a decline in revenues subject to the risk of non-collection;
- the state in lowering the cost of energy-assistance programs such as LIHEAP; and
- society in eliminating the inefficient use of a scarce resource.

Despite these common attributes, the two approaches to assuring continued utility service do present distinctly different methods of providing low-income households with the opportunity to limit utility bill payments to a "reasonable" percentage of their income. As a result, they each have unique advantages and disadvantages which will be discussed below.

The Utility-Based PIP Scheme

As mentioned, the utility-based PIP eliminates the threat of termination of service to a household unable to pay winter energy bills. It still does not limit a household's energy liability; it simply prevents the utility from shutting off heat to collect back bills if the required payments are made. Participating households are fully responsible for all preenrollment arrears as well as for the shortfall between the percentage of income payments and the actual bill.

Because of their posture towards arrears, both the Ohio and the Illinois PIPs may impose some uncertainties on these families. Especially for those households that move in and out of poverty (and thus in and out of PIP), this can be a serious shortcoming. If a household's income increases above the PIP eligibility level, it becomes responsible for all current bills and for all

preenrollment arrearages plus shortfalls accumulated during PIP participation. It then becomes subject to the entire range of collection techniques for these bills, including the disconnection of service for nonpayment. Under such circumstances, the benefits of a PIP are questionable. The household has saved no money and is faced with responsibility for a bill higher than the one that was unmanageable in the first place.

A third major problem is the inherent limitation of utility-based PIPs to regulated public utilities. By definition, unregulated energy providers such as fuel oil and propane dealers, and unregulated public utilities such as municipally owned providers and rural electric coops, fall outside the scope of the program.

A final problem is the impact on nonparticipants. When poor households do not cover actual energy bills, a PIP actually subsidizes them. If there are no supplemental funds to cover the shortfall in full, the subsidy will come from other residential customers and the diminishing number of large users who do not enjoy a variable-rate structure.

The LIHEAP-Based PIP Scheme

In contrast, LIHEAP-based PIPs distribute energy-assistance benefits so that all participating households pay approximately the same percentage of their income toward their energy costs. This scheme essentially equalizes energy burdens.

Historically, LIHEAP benefits were based on several objective criteria, such as income, household size, fuel type and climate zone, that were intended to bear a relation to the burden of a particular household's energy bill. Often they were imprecise. Because low-income usage varies so much (in part because housing quality varies widely), the resulting benefits have not necessarily reflected energy consumption or the cost burden borne by the household.

The targeting of LIHEAP funds to pay for low-income families' bills has varied widely within states as well. In both states with proposed statewide LIHEAP-based PIP programs (Wisconsin, Rhode Island), ordinary LIHEAP coverage of energy bills varied from nearly zero to over 100 percent. Moreover, even after eligible families received LIHEAP benefits, their energy bills varied from zero to over 30 percent of their income. In contrast, the LIHEAP-based PIP pilot in Wisconsin resulted in a coverage of energy bills ranging from 8.2 percent to 11.4 percent of income; in Rhode Island, coverage ranged from 4.9 percent to 8.5 percent.

A LIHEAP-based PIP program differs from the utility-based approach and the current LIHEAP approach in a key respect: a LIHEAP-based PIP tends to base the distribution of energy assistance benefits on the household energy burden. Because of this change in emphasis, the actual dollars paid to a household may be more or less than those paid under the previous LIHEAP program. The NCLC study of the proposed Rhode Island PIP found that the split between "gainers" and "participant losers" was substantial. Over 50 percent of the LIHEAP participants would receive lower benefits under a PIP. The Center's earlier study of the Wisconsin Gas proposal found that about 42 percent of the total participating population would receive fewer benefits under the PIP. In both

states, however, the households receiving lower benefits still would pay a smaller percent of their income on energy than those households receiving greater benefits.

This redistribution of benefits is a concern to some. There is no doubt that the households receiving reduced benefits are poor and need to help to meet their energy bills. It may be cold comfort to this group that the program still leaves them in "better" shape with respect to their energy burden than other low-income households.

Nevertheless, public policymakers should consider adopting a scheme in which the energy burden (in terms of percent of income required to maintain utility service) is nearly equal while benefits have significant variations, over one in which the benefits are nearly equal but the net energy burden (in terms of energy obligation as a percent of income) varies enormously.

Administrative Complexities

Those states considering the adoption of a LIHEAP-based PIP should recognize the real and potential problems inherent in its administration. Perhaps the greatest administrative concern is the required management of data. Initially, information on household energy consumption must be transferred from the utilities to the LIHEAP system so that the difference between a household's contribution and the actual bill can be determined. Problems may arise with matching names, addresses, and accounts; with accessing information within the confines of confidentiality; and with the physical process of transferring information between utility and LIHEAP personnel.

A second administrative problem arises because PIP requires an extremely aggressive information and education program. It must change current behavior and ensure the active participation of households in paying for energy bills on a monthly basis. The magnitude of the behavioral change required should not be underestimated. According to many who are familiar with the current LIHEAP system, its heavy emphasis on emergency grants actually discourages some households from making timely utility bill payments in order to qualify for emergency assistance. Under a LIHEAP-based PIP, however, there may be no systematic "emergency assistance" and a failure to pay on a regular monthly basis could result in the loss of energy-assistance benefits.

The Rhode Island pilot program does have a limited fund for emergency grants. The household must file an application for emergency funds and meet the same criteria established for non-PIP fund assistance clients--missing two PIP co-payments and demonstrating a change in circumstances that led to the inability to pay. Emergency grants are paid to the vendor in the customer's name.

Payment Level

One of the most crucial determinations in the success of a PIP program is the percentage contribution a state requires of participating households. The level of a payment will affect at least three major aspects of the program.

First, it will determine whether poor families can afford to make home energy payments. If household contribution levels are set too high, low-income

customers will continue to default, lose energy assistance, and arrears will continue to grow.

Second, the payment level will govern the number of low-income households covered by the program. If the program requires higher per household contributions, the overall shortfall will be lower and LIHEAP dollars spread over more households.

Finally, the contribution level will govern decisions on whether the program is financially feasible for the state. It also affects other issues including whether states will have to appropriate funds to supplement LIHEAP benefits. Where federal LIHEAP appropriations fall short, state funds would be necessary to allow household contributions to be set at a more affordable level. In Illinois the state legislature decided to use the state's oil overcharge funds to cover the shortfall between the household percentage of income contribution and the actual home energy bill. State legislatures also can appropriate general and special revenue funds if they so choose; several states (as noted elsewhere in this report) currently make contributions to their respective energy assistance efforts.

Conservation Incentives

One possible impact of a PIP is to remove the incentive for a poor household either to maintain its prior usage or to conserve. This problem might result from the open-ended coverage of consumption beyond that paid for by the household's required payment. Concerns about the impact of any increased usage have led inevitably to a discussion of limits on coverage and conservation incentives.

NCLC has concluded, however, that PIP contributions may not result in increased consumption of energy. The Center noted the belief that there is a saturation point for energy usage. With heating in particular, it is generally accepted that customers will seek a "zone of comfort." If they are living within that zone, the adoption of a PIP will not result in significant increases in consumption. NCLC studied these assumptions in Minnesota and the state office studied them in Michigan. In both cases, the research found that energy consumption did not increase after implementation of percentage of income plans. Moreover, an evaluation done of the Ohio PIP found that the program had some, but not much, impact on the consumption patterns of participating households.

A PIP could lead to some increased use of heat. High energy prices have forced many low-income households to make considerable sacrifices to maintain heat yet stay within their budgets during cold weather months. With this background, it is reasonable and desirable for a PIP to allow poor families to use enough fuel to attain a healthful and moderately comfortable environment.

Nevertheless, while a PIP should allow for increased usage by those who have been making unhealthy sacrifices, it also should ensure that truly wasteful use remains the responsibility of the consumer. A PIP should seek to create a disincentive to waste rather than an incentive to conserve. Three basic approaches are used to deal with the potential "conservation problem" created by a PIP. Two involve the placement of a cap on the energy usage a PIP will pay for; the third involves a dollar cap on PIP benefits.

Wisconsin's PIP caps benefit at an absolute level. Under this model, the state determines the amount of energy a particular household "should" use. The program recognizes, however, that different factors affect what an "appropriate" maximum level may be. As a result, the cap involves a dollar amount based on a combination of factors including housing, fuel type, and level of poverty. A household at 100 percent of the federal poverty level, for example, heating a dwelling of six or more rooms with electricity would have a benefit cap of $750. In contrast, a household at 150 percent of the poverty level using gas to heat a dwelling of three rooms would have a $300 cap. A household is responsible for usage above the benefit cap.

The Warwick, Rhode Island, project will use another conservation model in fiscal 1988. This program ties the cap on benefit levels to historic usage by a household. The usage limit is adjusted to the severity of the weather with leeway granted for usage above that level. Under this model, a household must consume no more than its past year's amount, normalized for weather, with a 20-percent leeway. It can win exemption from this cap if household size increases, a family member has a serious illness, or the consumption was beyond the household's ability to control.

This approach has the advantage of tailoring the limits to the household's past practices and dwelling. It does not measure households by normative standards that the housing itself may render impossible to meet. The disadvantage is that the approach tends to penalize those households that have sacrificed in the past to lower their bills by, for example, keeping thermostats low or by closing off rooms. (However, the Rhode Island pilot, by allowing a 20-percent margin, does permit the household to make some adjustments to consumption.)

Illinois adopted the historic usage model; it obligates program participants to pay for all usage above a residential "average." This amount is set equal to the household's usage for the same month in the preceding year and is adjusted for weather and household size.

NCLC has concluded that these three responses to the "conservation problem" are based on an erroneous definition of the real conservation problem. PIP administrators must identify high-usage households and limit their incentive to waste--for the good of the household and the program. At the same time, they should not assume that some initial block of energy consumption is "necessary" for basic needs and should reject the notion that consumption within that block always is socially acceptable, if not desirable.

The approaches to conservation discussed above equate "improper" consumption with "too much" usage. Indeed, the PIP conservation discussions to date have not looked at any notion of eliminating inefficiency at all levels of usage. In the PIP proposals, "energy waste" is equated with "high usage," while low usage merits no consideration of efficiency.

Under a PIP usage cap, qualification for the PIP benefits neither presupposes the efficient use of energy nor rewards the pursuit of conservation. Thus, for example, inefficient users of small volumes of energy would qualify for all program benefits while, in contrast, large users adopting a variety of conservation measures to reduce usage to a "moderate" level would not qualify for benefits above the cap. Moreover, many poor households, living in energy-wasteful home environments and because of the very fact of their

poverty, may well have usage levels in excess of the cap and feel the pinch of the restrictions.

A more satisfactory result might be obtained by providing PIP benefits to all means-eligible poor families regardless of their level of usage--as long as that level is efficient within the financial capabilities of and available assistance to the household. At the same time, the PIP assistance would be withheld from any household, even if otherwise means-eligible, whose usage is not efficient--whether or not the level of usage is high or low. The adoption of such a policy would provide necessary financial relief to income-eligible clients while avoiding the conceptual, methodological, and political problems of the "conservation problem."

Objective criteria are necessary, of course, to determine whether a household's energy consumption is "efficient." Included in the analysis might be a comparison of actual usage to average residential usage considering household size and dwelling type; a consideration of current usage compared to historical usage; and an examination of the extent to which low-cost/no-cost conservation strategies are in place. Moreover, in any conservation analysis, "cost-effectiveness" would be measured on a personal basis. An otherwise income-eligible family, in other words, would not be denied benefits for failing to make efficiency improvements beyond the households's financial capabilities.

Efficiency would be determined through a home energy audit similar to the Residential Conservation Service (RCS) audits undertaken pursuant to federal w. A precondition for receiving benefits would thus be to agree to have an RCS-type audit. The family would be required to pay for and/or allow all efficiency improvements that are cost-effective. The state must help these efforts by providing priority conservation and weatherization assistance to identified high-usage families.

Treatment of Arrearages

The forgiveness of preenrollment arrearages is another critical element of any PIP effort. Through this mechanism, the burden of arrears that simply are too high for a low-income household to handle would be eliminated. Without dealing with these past due bills, a PIP oriented toward current costs will fail to keep total energy burdens within a reasonable percentage of a household's income, the goal of the program in the first place. The Wisconsin and Rhode Island arrearage-forgiveness concepts merit examination.

Wisconsin links the partial forgiveness of arrears with the payment of current bills. Under this program, a participating household is responsible for the first $180 of arrears with each energy supplier. The utility is repaid over a three-year period by slightly increased percentage of income contributions. The remaining arrears are forgiven, also over a three year period. For each three payments made by the eligible household, one-twelfth of the arrears are forgiven; credit for the forgiveness is given at the end of each year.

Rhode Island also has endorsed a three-year arrearage-forgiveness principle. Households successfully meeting their PIP obligations would have one-third of their accumulated arrearages erased each year. Households that

fail to make their PIP payments, unless the default is cured, would not obtain arrearage forgiveness for the period in which the default occurred.

The costs of arrearage forgiveness in both states would be paid from accounts that utilities maintain to cover bad debts. Many utilities, regulators, and advocates who have actively studied the issue have concluded that the dollar impact of a forgiveness scheme, when coupled with the benefits flowing from the incentive to make regular payments, will not differ significantly from utilities' accrual of bad debt under normal write-off procedures.

An arrearage-forgiveness mechanism has two significant advantages. First, participants must make their percentage of income payments in order to benefit from the forgiveness provision. This provision gives poor families a strong incentive to fulfill their obligations to utilities after joining the PIP. Second, significant numbers of low-income households are carrying substantial utility arrearages. The seemingly hopeless nature of their efforts to pay these debts doubtless affects current payment practices as well. Some sort of "clean state" or suspension of past indebtedness might make a difference with current payments.[1]

Conclusion

A number of states have initiated percent of income programs as a way of responding to the long-term problem of low-income households' inability to shoulder essential energy costs without adequate assistance. They are based on the premise that such families should pay for energy costs on a monthly basis but only a set percent of their income presumed to be affordable. Otherwise they become overwhelmed by accumulated debt, are encouraged to apply for emergency assistance by going to the brink of disconnection, or actually are disconnected.

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[1] This analysis of PIPs is a condensed version of material prepared by the National Consumer Law Center, Inc. and appears with the permission of the Center. For an overview of the various plans now in operation, see NCLC, PIP Implementation by the States (Washington, D.C., 1987). Center evaluations for specific states include: The Crisis Continues: Addressing the Energy Plight of Low-Income Pennsylvanians Through Percentage of Income Plans (Boston, Mass., 1986); Percentage of Income Plans: Final Report to the Low Income Energy Task Force of the Rhode Island Public Utility Commission (Boston, Mass., 1986); Evaluation of Minnesota Fair Share Pilot Programs (Boston, Mass., 1986); and Evaluation of Wisconsin Gas Company's Proposal for a Guaranteed Service Plan (Boston, Mass., 1985); Evaluation of Maryland's Winter Heating Protection Program (Boston, Mass., 1987). See also Controlling Household Usage Under Percentage of Income Plans: Model Conservation Mechanisms (Boston, Mass., 1987), and Warwick Percentage of Income Plan Demonstration Project: Program Narrative (Boston, Mass., 1987).

States have experimented with program designs. In general, those programs that structure debt forgiveness, adjust programs to reflect energy burden, discourage wasteful consumption, build in conservation incentives, and spread LIHEAP assistance equally among all fuel providers represent the best efforts. Such programs are by nature complex, demand high levels of coordination and additional administrative burdens.

The single most pervasive challenge is to find acceptable ways to pay for the shortfall between the amount of energy costs paid by the household (including federal assistance) and the total energy bill. Ratepayers of regulated utilities object to paying for the accumulated low-income arrearages. This approach also fails to deal with unregulated utilities and propane and fuel oil dealers. Supplementary state appropriations are subject to fluctuating state budgets. States responding to economic recessions and increased numbers of eligible households are those least able or willing to provide such assistance. This dilemma highlights the need for adequate federal funding based on actual need, as well as greater innovation in supplementing federal assistance.

5. Using Present Resources Well

In the first few years of running energy assistance programs under federal guidelines, states tended toward the uniform, treat-everyone-alike policies. As they gain more experience, this pattern is giving way to focused and specialized forms of aid. A fundamental assumption in these programs is that Congress intended LIHEAP to be an "energy assistance" program, aimed at equalizing the energy burden among low-income households, not an "income assistance" program plugging the inevitable holes in low-income budgets.

Some states are revising and enlarging the pool of households eligible for help. LIHEAP enrolls about four of every ten eligible. Recent analysis suggests that the very poorest are least likely to receive aid.[1] While this is the national pattern, tremendous variations exist from state to state, from one local area to another, and from year to year--both in the numbers enrolled and the reasons why some are excluded. Some states (and private sponsors of energy assistance) have found ways to include more households, while others have focused what they have on a narrower pool of neediest households.

States also are extending the impact of LIHEAP payments by giving recipients other kinds of support. This might include providing different forms of energy assistance, supporting counseling services, coordinating regulatory and utility policies with energy assistance, and helping recipients help themselves as much as possible.

Poor recipients as a group have some disposable income; they must and should continue to contribute to the solution of the problem. One objective of a well-designed public strategy is to elicit and structure their contributions equitably through targeting, coordination, and leveraging. Some more notable plans to improve and extend public resources are described in this section. Most are quite recent; they are not so much "proven models" as initial efforts to fine-tune policies and solve problems at the local level.

Revising LIHEAP

The LIHEAP program always has been under-subscribed. Of the 17.5 million state-eligible households, only about one-third were enrolled in 1987. Indirect evidence and common sense suggest that lack of information, pride, and administrative obstacles all play some role in preventing people from signing up for the LIHEAP benefits they are entitled to receive.

In any case, it is a sad irony--and sometimes a public scandal--that states have found themselves with large amounts of unspent dollars at the end of the program year, while many eligible families were not receiving sorely needed benefits. This problem reached its height in 1984-85. A total of $158.2 million in fiscal 1984 funds carried over to fiscal 1985, years of the highest energy costs ever known. The 1984 reauthorizing statute restricted states from carrying over more than 15 percent of their allocation. As a result, the total national carryover fell to $85.4 million in fiscal 1986; estimates are that it will have shrunk to $26.2 million for fiscal 1987.[2]

However, smaller carryovers have not come primarily from enrolling more poor people; participation nationally has been astonishingly consistent over the life of the program. Changes in other aspects of the program and lower funding levels have made the difference.[3]

	Fiscal Years				
	1983	1984	1985	1986	1987 (est)
Enrollment (millions of households)	6.8	6.8	6.8	6.7	6.3[1]
Average Benefit (for heat)[2]	$225	$236	$242	$231	--

[1]This figure includes households receiving winter heating assistance and those receiving both heating assistance and winter crisis assistance.
[2]This figure represents states' estimates of households receiving winter heating assistance only; crisis-assistance additions, which are not yet available, will raise the total enrollment figures.

SOURCE: U.S. Department of Health and Human Services, Annual Reports (Washington, D.C., 1983, 1984, 1985, 1986).

In fact, the program serves much less than half the eligible households and misses many of the poorest who help the most.

A recent national study by the independent Economic Opportunity Research Council concluded that two groups are relatively well served: "categorical eligibles"--clients of other income-maintenance and service programs--and those who live outside central cities, especially if they have high energy burdens. It termed LIHEAP as "fairly successful" in reaching one-person, elderly households, especially households headed by the "young-old."[4]

However, the study also revealed the under-enrollment of two population groups whose plight remained hidden in aggregate statistics: the poorest of the poor, who may not receive welfare or live in subsidized housing, and renters whose utilities are included in their rent. The lower rate of participation of the old-old and frail elderly, families with young children, and households with a history of energy crisis also is cause for special concern. "Failure to serve these populations is . . . contrary to the stated aims of the program," according to the report, and may be life-threatening[5].

Some states make special efforts to include these groups. West Virginia, among others, gives its elderly and handicapped population a head-start in signing up for its regular grant program. It mails an application kit prior to the general opening to all households, approved in the previous year, which included any handicapped or elderly members (not necessarily heads of

household. They may enroll at special sites, including Senior Citizen Centers. The program began in 1985-86.

The actual status of the "working poor" under LIHEAP is not entirely clear. However, it appears that in many areas the program is not reaching this group in proportion to its needs. A major state-level analysis performed several years ago by the Pennsylvania Public Utility Commission found that 80 percent of a sample of households terminated for nonpayment were primarily dependent upon employment income. The study showed that a large number of these families were "borderline"; they were not always qualified for assistance, but their limited resources were strained to the breaking point by crises such as divorce, disability, and spells of unemployment.[6]

In the state of Washington, when local community agencies become aware of expected saw mill closings, they contact soon-to-be unemployed workers to arrange energy assistance. Indiana, eager to lessen the "welfare stigma" of energy assistance, routinely offers intake at utility company offices. Colorado has arranged for applications to be mailed with utility bills.

Recently, concern has focused on single-parent households and couples--often younger workers--supported by very low-paid, sometimes sporadic service-sector jobs. The number of such households, which tend to lack fringe benefits and "safety nets," appears to be a growing segment of the poverty population of the 1980s.

In 1984 Congress prohibited state LIHEAP agencies from setting extremely low income ceilings or excluding households that were not "categorically eligible" (e.g., receiving some other form of public assistance, such as AFDC or Food Stamps). This part of the revised statute meant to encourage broader participation among the working poor.[7] Advocacy organizations have succeeded through the courts in securing access to benefits for tenants in subsidized housing whose utilities also are subsidized. The basis for these legal challenges is the LIHEAP statute, which requires that the neediest households receive the highest level of assistance and forbids the automatic exclusion of tenants. Some states factor in existing subsidies when determining benefits, while others do not. Advocacy organizations also have succeeded in assuring equitable benefit levels to renters who pay for utilities through their rent, as required by LIHEAP statute.[8]

New York City and Portland, Oregon, have now extended energy assistance to their homeless populations. The Oregon program provides a free sleeping bag and winter jacket to each person who applies at a shelter. The merchandise is purchased from manufacturers; in 1985 the cost was $53 for both items. They also set up an energy payment program for residents of hotels. These payments are sent directly to the hotel for the client, which then reduces the client's rent during the three winter months by the projected amount of energy costs. Oregon officials justify this use of the funds on the grounds that homelessness often stems from the lack of affordable lodgings. Many single-room-occupancy hotels and shelters have closed because of high operating costs, especially utility costs. New York City reimburses the nonprofit operators of shelters for the homeless for a portion of their utility bills.

The discussion so far has highlighted efforts to bring more and diverse households into LIHEAP. At a time that state agencies are faced with reduced

federal funding, the opposite is also true: states are seeking ways to redefine access to assistance to control demands on resources.

Utilities that provide their own resources to payment-troubled customers are facing similar choices. Although many private agencies' resources are growing rather than shrinking, they also are far more limited than public resources. Their use is apt to be closely scrutinized from a business standpoint. Both public and private funders of utility assistance want to ensure that the support does go to those whose need is greatest; all others will see benefits reduced or eliminated.

Targeting and the Concept of "Energy Burden"

The LIHEAP statute requires the states to consider income--taking into account family size--in relation to energy costs, in deciding which households are to receive what size benefit. Currently, most states treat LIHEAP essentially as a poverty program, keeping the issue of fuel costs somewhat separate. Generally a multivariate matrix is used to determine how funding is to be distributed. Poverty level--a scale of income categories, controlled for family size--is always one of the factors.

A rough measure of poverty (i.e. an "income test") alone determines eligibility. After that has been established, the precise level of poverty helps to determine the benefit amount. All other things being equal, a poorer household will receive a higher benefit than one with more income.

From one to four other criteria may also enter into the calculation of the benefit amount. These may include heating degree-day regions or "climate zones," fuel used for space heating, housing type, and whether a family lives in subsidized housing or pays utilities with the rent. In combination, the other criteria result in a scale that corresponds to the fuel cost which each household is expected to face over the coming winter season or full year. Thus a family that uses a high-priced fuel and lives in a detached home where winters are most severe would receive a higher benefit than the apartment-dweller using a cheaper fuel who lives in a temperate part of the state.

It is important to note that under the matrix system, the fuel cost variables are not employed to determine which households are eligible and which are not; the fuel cost variables affect only the benefit amount. Criticism of the matrix approach has focused on the limited role of fuel costs. Suggested reforms would concentrate LIHEAP funding on households with a combination of highest costs and lowest incomes, i.e. the most severe "energy burden."

A study in Colorado in 1984 showed that the matrix formula then in effect did a fairly good job of targeting benefits in relation to actual energy costs--that is, a solid majority of beneficiaries received about the share they "deserved." There was some distortion, however, which could be traced largely to the climate zone variable. [9] Hence the study recommended elimination of climate zones from the matrix.

The concept of "energy burden" as a composite, poverty/cost index appeared in a 1986 study commissioned by Wisconsin Gas Company in Milwaukee. [10] The consultant recommended concentrating public assistance dollars on "high-burden"

households, using a cost-based percentage of income plan (see the previous section). The study proposed to base eligibility (and subsidy level) on the cost of home energy, not just on an income test. Fuel cost as well as income would be documented for each individual applicant. A statewide task force recommended implementation of the pilot program in 1986.

The immediate effect was to remove benefits (or reduce their amount to the point where participation is not worthwhile) of a significant fraction of LIHEAP-eligible households. The impact on "loser" households was mitigated with transitional measures (grandfathering, a benefit floor) and imposition of a benefit "cap". Nonetheless, the essential thrust of the proposal is clear: in the presence of limited resources, some will lose support in order to provide more adequate assistance to those whose need (or "energy burden") is greater.

In 1983 the Wisconsin Public Service Corporation (WPS), a utility in the Green Bay area, commissioned survey research (the "Wisconsin Lifestyle Study") to learn more about customers who were consistently delinquent in paying their utility bills.[11] The initial focus was on payment problems rather than on poverty or need. The part of the survey that drew the most attention was the finding that up to 40 percent of WPS's delinquent customers did not need payment assistance at all although some were in fact quite poor. Many were identified as "poor money managers" who might instead respond to budget counseling, education, and what the industry calls "soft-core dunning."

The survey has become widely influential among utility companies and others interested in the issue. From the standpoint of the utilities, the policy implications seemed, for once, to be relatively optimistic and inexpensive.

Individualized Definitions of "Need"

Both the matrix system and certain percentage of income plans have been criticized for accepting some who technically qualify but do not really need the help, which excludes the truly needy. The eligibility tests are a "coarse mesh," not sensitive to individual circumstances that make a genuine difference in a household's ability to pay.

Assessment of individual needs gives a better picture of which households need what help. Its use rests on a new awareness that the low-income population is neither static nor monolithic and that the payment-troubled population is equally complex. Careful management of scarce resources is an essential motive of these programs. One of the overall effects is to narrow down the number of eligible households.

Philadelphia Electric Company's Customer Assistance Program (described in detail in Chapter 3) operates a highly individualized payment assistance program. The utility calculates the exact amount of subsidy for each household based on expenses as well as income; it conducts detailed verification at the intake interview to weed out client misstatements.

After more than two years of experience with the program, the utility is satisfied that those who really need the help surface early in the intake process. Consistently, about half of those referred with serious delinquencies

and earlier claims of inability to pay withdraw when first contacted by the CAP, claiming an ability to handle normal payment terms after all.

CAP was initially designed to solve long-term payment problems. In practice, CAP deals with customers having long-term and "midterm" problems--those beyond the reach of one-shot crisis assistance but not "permanent" in acute form either. About half of CAP's clients "graduate" from the program in one year or less and are picked up by the utility's Telcon (telephone contact) program, a system for reminding each one personally of the need to pay the electric bill every month.[12] Thus the utility has a range of strategies for payment-troubled customers.

Concentrated Assistance: A Trend in Delivery

Providers of energy assistance are displaying new interest in old-fashioned casework: an examination of the whole person, family, and context in contrast to a focus on particular problems and highly specialized responses. Admittedly, casework is a labor-intensive approach which may appear to be at odds with a cost-conscious public agenda. However, the cost-benefit balance sheet may be favorable if the energy-related services are delivered at the same time as other social services--or if a single agency is enabled to analyze and act upon the whole range of a household's energy-related needs, from negotiation of terms with a utility to advice on the economical use of appliances.

In pursuing its major goal of reduced dependency, the federal Family Support Administration--which oversees a panoply of welfare programs, WIN, and LIHEAP--and its parent agency the Department of Health and Human Services, have officially endorsed the concept of coordinated family-based services. Many of those involved show keen interest in putting together a meaningful energy assistance "package": ideally, one which wraps around regulations, rate-setting, public and private forms of energy assistance. State executives (Ohio, Minnesota), regulatory agencies (Michigan, Wisconsin, and Pennsylvania), state legislatures (Maryland and New York), LIHEAP officials (Rhode Island, Indiana, Illinois, Colorado, Wisconsin, and Oregon), and consumer advocates (Minnesota, Rhode Island) have initiated limited or comprehensive coordination strategies themselves, or have created intersector task forces to do so.[13]

The assumption behind concentrated assistance is simple: a resource is best used in combination with other resources, guided policies that have similar goals. A multitude of concentrated assistance strategies are springing up where practical needs, imagination or imitation, and official encouragement have converged. Several identified targeting strategies show good results: those holistic approaches, coordinated administration, and relation of one policy to another.

Delivery of Other Energy-Related Aid

Help from other sources can include weatherization aid, education in how to conserve, and private charity. In theory, those who are eligible for LIHEAP also are eligible for conservation assistance from another LIHEAP fund and a Department of Energy program. Despite the considerable achievements of these

efforts, funding still is relatively limited. Some states have replaced a first-come, first-serve policy with prioritized (or targeted) services.

Oregon targets weatherization to the physically vulnerable elderly. Michigan targets to the highest-user households. The Wisconsin Task Force proposed restricting public-funded weatherization services to those who participate and maintain good standing under the percentage of income plan. It also suggested targeting to the highest users to cut the burden on the PIP. The next chapter examines weatherization program detail.

"Soft" factors such as lifestyles, habits, and knowledge are bound to affect a household's usage, and hence, the cost of energy to the household and to LIHEAP. Unfortunately, no well-tested model of energy education has surfaced, particularly any large-scale program successful with low-income households. Although education obviously is inexpensive, it has been difficult to document savings attributable directly to educational programs or program components.[14]

Overcoming poor families' negative attitudes and resistance to change is a problem in conservation as in any public-education effort. Survey research in Wisconsin, Pennsylvania, Minnesota, and California has documented the unsurprising prevalence of negative and pessimistic attitudes among many low-income customers and the clients of assistance programs. The California surveys "suggest that most low-income households have a very poor understanding of the factors that affect their energy consumption . . . did not practice home energy management and felt that there was little, if anything they could do beyond the weatherization measures that were installed." A Minneapolis study found that "a very substantial portion of [energy-assisted] households do not know how the electric company determines their bill. . . ."[15]

The slender record of theory and experience in this area has yielded a handful of insights nonetheless. "Modeling"--having the learner observe a person otherwise similar to him or herself acting out the desired behavior--may be important in getting people to change. Having trainers similar to learners in significant areas such as race, age, and place of residence, or who are identified as "network leaders" are ways that energy education programs have applied the concept of modeling. Low-income customers also may respond well to trainers they perceived as authorities, especially impartial authorities. In one study, customers who received a conservation message purporting to come from the PUC responded more actively than those who got the same message from their local utility.[16]

Some researchers have concluded that behavior is more apt to change if people are led gradually from a small, initial commitment to more substantial lifestyle modifications and if the proposed measures present an extension of personal choice and control rather than appearing to limit autonomy (for instance, by installing automatic thermostats.) A focus on comfort may be more attractive to some trainees than a focus on economics.

Actual energy-education programs run the gamut from targeted and highly intimate to nontargeted "mass media" models. In Maryland, videotapes run continuously in waiting areas of energy-assistance offices; state officials find this an inexpensive way to reach an audience at a moment when it is especially motivated to do something about energy costs.

In the absence of specific motives or requirements, the group-workshop model by itself has had limited success. However, the auspices under which they are held make a difference. California has marketed conservation using the neighborhood "tupperware party" model. "Weatherization workshops conducted in this setting were not only warm and friendly, but turnouts were high, and participation in actual hands-on conservation work spurred others to weatherize their homes."[17]

There have been some experiments with individual, in-home counselling, although none was large-scale. A community-based organization in Philadelphia (GRACE) offered energy-conservation instruction to 70 low-income recipients of a free gas burner retrofit and/or weatherization program. Following the professional installation of major pieces, a trainer provided in-home, hands-on instruction in caulking and other low-cost technical measures, as well as information on other ways to reduce energy costs. An evaluation showed a small but cost-effective additional margin of savings by those who were trained.[18]

Similar results were achieved in Kansas. Trainers offered two in-home follow-up visits to low-income households which had previously received both payment assistance and a group-workshop presentation. Cost of the program was less than $50 per household. Participants achieved an average savings of 10 percent, as compared with control group savings of 8 percent.[19]

Training also could focus on those who appear to need it most. The Minneapolis Community Action Agency had adopted this approach. Applicants for cash assistance whose bills are above average for their housing type must attend a group conservation workshop before drawing their grant. The workshops themselves are outstandingly lively and to-the-point of everyday decision-making in a low-income context; they are reported well-received by clients. The group presentation is followed up by an home visit that includes installation of low-cost weatherization and evaluation for possible targeting of major conservation measures.

Wisconsin proposes to target energy education and "counseling appropriate to their circumstances" to Energy Assurance Program households which have been weatherized, but which fail to meet the "savings estimates" developed for that particular residence. Providers of education could be county welfare offices, utilities, and weatherization contractors.[20]

> . . . Energy education cannot replace weatherization and other direct assistance programs, but . . . it can increase the effectiveness of these programs. Not only can behaviorally-oriented education ensure that installed hardware is used effectively, (but) in some cases education may be a more cost-effective first step for reducing low-income energy consumption. . . . Additionally, educational strategies can target electricity usage which may be significant . . . although not controllable through physical intervention in the home like heating fuels."[21]

Some jurisdictions have set up programs to offer "one-stop" shopping for energy-related services. Philadelphia's City-sponsored Energy Coordinating Agency is working to graft the full range of energy services from payment assistance to free professional and do-it-yourself weatherization, furnace retrofitting, and energy education into existing community bases, via a network

of neighborhood energy centers. The purpose is to make all these services (with their separate public and private sponsors) easily accessible to low-income families. Maryland's Energy Advocates, a network of public and private agencies, has developed a service model for working with very-high-arrearage clients. In individual sessions, counselors help clients set up a plan to mobilize all possible public and charitable payment assistance, to secure weatherization services, and to mediate a special agreement with the utility with the objective of getting the arrearage paid down over a three-year period.

Delivery of Non-Energy Aid

The threat of utility shutoff is not the only problem faced by most low-income families. The Wisconsin Lifestyle survey, noted above, suggested that the real problem may lie with budget management rather than an absolute lack of resources. Mobilization of other sources of assistance may help produce the resources to pay for the household's energy use.

This awareness has led to more interdependence of utilities and the social service network, initially in information exchanges or "tip-offs" on which households need help of different kinds. The beginnings of actual cooperation in working out comprehensive plans to help specific households also are evident.

Utilities also are more and more involved in "cares" programs, in which customer-service workers provide a personal contact and advice for a group of specially vulnerable customers. "Cares"-type programs for senior citizens are fairly common, but only recently are similar kinds of programs being tried for low-income, payment-troubled customers. The "cares" worker usually has the authority to postpone a bill or make special arrangements for a customer who is known to be making a sincere effort to pay. These workers are acquainted with customers' situations and are in a position to make referrals to human services available in the community.

In 1985 the Pennsylvania Public Utility Commission began to require utilities under its jurisdiction to demonstrate "tracking and referral" of payment-troubled customers. They must identify those customers from their own records and establish adequate links with public and community-based providers to make referrals as informed and effective as possible.

Wisconsin's Early Identification Program (EIP) is an innovative approach mandated by the Public Service Commission and also adopted by the Department of Health and Social Services, which administers the LIHEAP program. Utilities must employ special customer representatives and higher-level customer advisers responsible for community networking to identify crisis-vulnerable customers at some early point (perhaps two or three months' delinquency), and provide counseling and referral to other services as appropriate. (It has been estimated that the cost to Wisconsin utilities will be around $3 million.) The counties are directed to take some initiative in contacting utilities regarding customers who have repeatedly applied for crisis assistance or who appear to have very large arrearages. LIHEAP workers also are responsible for casework with these vulnerable clients, and are to offer services personally or mobilize adjunct services, such as budget counseling and prioritized weatherization services.[22] This program has received national attention.

The Early Identification Program has been operating for four years. The University of Wisconsin's School of Social Welfare evaluated the Wisconsin Gas Co.'s EIP in Milwaukee in 1986. The consultant's report to the utility pointed out that EIP brought in more money in customer payments than the program cost. The evaluators thought the general approach was "impressive," although in most cases the fundamental economic status of its customer/clients was unchanged. The study concluded that the utility needed to be more consistently realistic about what these customers could pay, and that additional state-funded assistance was a necessity.[23]

It is clear, however, that implementation in Wisconsin and elsewhere is limited by the availability of community-based services in general, or of particular services such as budget-counseling helpful to low-income families, and the absolute ability of the energy agency to "command" priority access of scarce resources (such as weatherization) for the clients it has identified as specially needy. These problems have to be faced and resolved for an early identification program (or any referral program) to work well.

Project Hope, a community nonprofit model, is a program linking mortgage and utility payment problems. The model currently is operating under the auspices of Housing Opportunities, a nonprofit organization in McKeesport, Pennsylvania, and will be replicated in Cleveland and Youngstown, Ohio. Project Hope is tailor-made for depressed industrial towns where unemployed workers and their families often are trapped: unable either to sell their homes or make payments, they often face huge debts to the utilities as well as threat of foreclosure on their homes. Yet most will eventually get on their feet again.

Most clients are referred to the project by mortgage lenders. Project Hope provides in-depth budget counseling and retraining orientation while it helps households work out mortgage and utility payments. The program uses the state's foreclosure relief funds and generates additional program income from fees charged to the creditor organizations. The latter are well satisfied with the cost-effectiveness of collections through Project Hope, which in the case of one utility returned nine times the outlay in fees. Project Hope has received support also from major industries in the area, many of which are planning additional closures and restructuring of the work force.

Linking Public Payment Assistance to Utility Collections Policies

LIHEAP-based budget plans are voluntary arrangements in which the customer agrees that the utility may apply the LIHEAP grant to payments under a "levelized billing" plan. Customer response has been lukewarm to date. In the Wisconsin Gas Company model, the utility rather than the customer decides how LIHEAP vendor payments will be used. These companies divide LIEAP clients into three classes depending on the household's current resources. For those who are reasonably expected to pay for current usage (about 25 percent of LIHEAP clients), the LIHEAP benefit is applied against the arrearage. For those with somewhat less ability to pay (about 25 percent), the benefit is applied to reduce current billings in equal monthly increments. The group with the smallest resources (about 50 percent) also have their benefits applied to current billing, with other (state, private, and utility) assistance needed to keep these customers "above water."

For both the second and third categories, the previous arrearage is held in suspense without penalty or risk of shutoff, provided the customer carries his or her share faithfully and is forgiven in increments over time beginning with the third month of good payment. The program began as a pilot in 1986; the company is pleased with it so far, although the "other resources" remain in question.

Conserving Non-LIHEAP Supports

The concern here is to focus supports and protections on those households certified as needy under LIHEAP program criteria. In this way the intentions, as well as the fiscal resources, of the federal assistance program may be supported, while the utilities are relieved of the potentially onerous "social welfare" responsibility for determining need.

The major example is action by the regulatory commission, restricting winter shut-off protection to low-income households and/or participants a state's protection plan. Ohio, Maryland, and Indiana are among the states which limit the moratorium in this way.

Co-Payment Programs

Co-payment programs are a most direct approach to leveraging poor families' own resources and ensuring that they maintain a level of independent responsibility for the payment of fuel bills. A number of states--Illinois, Kansas, Indiana, Nebraska, and Minnesota--make receipt of the LIHEAP and/or crisis benefit conditional upon the customer's demonstrating a good-faith effort to pay.

In Illinois, for instance, a good-faith effort is defined as payment of at least 10 percent of income to the primary fuel supplier, which entitles the customer to receive a crisis benefit. Minneapolis' pilot program dealt with high arrearages. Beneficiaries of the crisis program could opt to have LIHEAP vendor payments applied to the past-due arrearage and to enter into a deferred payment plan for the balance of the arrearage plus current bills. For each month that the agreement was kept, LIHEAP would pay another 10 percent of the arrearage until it was paid off.

Conclusion

In an effort to grapple with the reality of the long-term energy-payment problems of the poor and elderly, state officials have designed programs to target assistance to the most needy, coordinate the various types of help available, and spread responsibility for its delivery more broadly between the private and public sectors.

Many of those concerned have realized that available assistance often is inadequate and that paying more attention to the individual household is necessary to secure active participation in solving its problems. Some of these efforts, such as utility and public assistance "case-work" approaches, have been successful. In general, these more individualized strategies for troubled customers improve the provider's ability to help.

While making incremental improvements, however, these programs cannot solve the underlying problems of inadequate incomes, structural problems in building stock and heating/cooling equipment, and a sense of hopelessness that maintain the cycle of energy costs beyond the household's means.

Notes to Chapter 5

1. Economic Opportunity Research Institute and the Grier Partnership, Low Income Energy Programs at Mid-Decade: Limits and Opportunities (Arlington, Va.: National Association for State Community Services Programs, June 1986), pp. 35-36.

2. U.S. Department of Health and Human Services, Annual Report to Congress for 1984 (Washington, D.C., July 1985) and Annual Report to Congress for 1985 (Washington, D.C., July 1986). Preliminary 1987 estimate based on HHS, "Report On the Low Income Home Energy Assistance Program," as requested by the Senate Committee on Appropriations, September 1986.

3. U.S. General Accounting Office, Low-Income Energy Assistance: State Responses to 1984 Amendments, (Washington, D.C., May 1986). Survey data on a cross-section of 13 states. Statements in the report reflect national trends, not the experience of any particular state.

4. Economic Opportunity Research Institute, Low Income Energy Programs at Mid-Decade, Executive Summary, p. 16.

5. Ibid., p. 26.

6. Pennsylvania Public Utility Commission, Bureau of Consumer Services, Residential Utility Consumer Payment Problems: A Study of Customer, Company, and PUC Interaction (Harrisburg, Pa., 1982), Chapter 1. This and related research papers sponsored by the PA-PUC, some authored by Drew Hyman, et. al. at Penn State University, are widely quoted sources in the energy assistance field.

7. A 1986 GAO survey revealed that although " . . . state officials believed that (the 1984) eligibility changes will increase the involvement of nonwelfare poor with the program, our discussions with them indicate that they do not compile data on the nonwelfare poor in a uniform manner which would permit tracking the effects of these changes." U.S. General Accounting Office, Low Income Energy Assistance: State Responses, p. 19.

8. The key court decision, Clifford, et al. v. Janklow, was reached by the U.S. District Court for South Dakota and upheld by the Eighth Circuit Court of Appeals in 1984. The decision concerned tenants in Section 8 and other subsidized rental housing programs--but not tenants in "projects" whose utilities are paid by Housing Authorities. cf. National Consumer Law Center, Energy Updates, (Boston/Washington, June 1983, Aug. 30, 1984, Oct. 23, 1984, Feb. 13, 1985, April 2, 1985.)

9. Legal Aid Society of Denver, "Evaluation of the Colorado Low Income Energy Assistance Program Payment Matrix" (Denver, Colorado, 1984). Eventually, Colorado began instead to experiment with a "cost-based" benefit formula with a client co-payment--in effect a form of PIP. Cf. D. Knapp et al., "Home Energy Assistance: Actual Cost Should Be the Basis of Payment," Public Utilities Fortnightly, Sept 18, 1986.

10. Charles E. Hill et al., Evaluation of Wisconsin Gas Company's Proposal For a Guaranteed Service Plan, Parts I, II, and III (Boston, Mass., National Consumer Law Center, 1985).

11. Bergo and Matousek, Wisconsin Lifestyle Study (Green Bay, Wisconsin, 1983). A summary and review appeared by M. Kieffer and R. Grosse, "Why Utility Customers Don't Pay Their Bills," Public Utilities Fortnightly, June 21, 1984.

12. The Conservation Company, Evaluation of Philadelphia Electric Company's Customer Assistance Program (Philadelphia, Pa., 1987), pp. I-4.

13. U.S. Department of Health and Human Services, Office of Family Assistance, Low Income Home Energy Assistance Program, "Proceedings of August 1985 Roundtable Discussions" (Washington, D.C., 1985) pp. 14-17.

14. Bonnie Cornwall and Mark Duerr, "Low Income Energy Education: Is It An Effective Adjunct to Traditional ECIP and Weatherization Services?" in Proceedings from the American Council for an Energy Efficient Economy 1986 Summer Study on Energy Efficiency in Buildings, vol. 7: Social and Health Factors (Washington, D.C., 1986), p. 7.35. But see CAP Services Inc., "Arrearage Reduction Project Evaluation, August 1, 1985-June 30, 1987, Executive Summary" (Stevens Point, Wis., 1987), p. 7.

15. Cornwall and Duerr, "Low Income Energy Education," pp. 7-44. Also see the Wisconsin Lifestyle Study and The Conservation Company, Evaluation of CAP.

16. E. Aronson and S.M. Yates, "Residential Energy Conservation: A Social-Psychological Perspective," American Psychologist, vol. 38, no. 4 (April 1983); and Scott Coltrane et al., "Smart Programs: The Social-Psychological Foundations of Successful Energy Conservation Delivery Systems," in Proceedings of the ACEEE, vol. 7, pp. 7.21-7.33.

17. Coltrane et al., "Smart Programs," p. 7.27.

18. Thomas Lent, Energy Coordinating Agency of Philadelphia, "Weatherization Assistance Program Education Pilot," unpublished research, 1986.

19. J. Lonergan, "Evaluation of Shawnee County Low/Fixed Income In House Consultation Program" (Topeka, Kansas, 1986), p. 5.

20. Wisconsin Ad Hoc Low Income Energy Task Force, "Report and Recommendations," Part 2 (Madison, Wisconsin, 1986.)

21. Cornwall and Duerr, "Low Income Energy Education," pp. 7, 44-45.

22. U.S. Department of Health and Human Services, "Proceedings of August 1985 Roundtable Discussions," pp. 21-23, and Wisconsin Bureau of Economic Assistance, Division of Community Services, "Model Plan For County and Tribal Energy Emergency Programs" (Madison, Wisconsin, 1984).

23. University of Wisconsin School of Social Welfare, "Final Report to the Wisconsin Gas Co., Program Evaluation of the Early Identification Program" (Milwaukee, July 31, 1986).

6. Low-Income Weatherization Programs

"Weatherizing" the homes of low-income Americans is the second part of the federal effort to minimize the hardships of poverty and high energy costs. Installation of materials and equipment designed to protect a structure from the weather and to improve the efficiency of its heating/cooling equipment are the most cost-effective ways to lower home energy costs. Those least able to pay high utility bills often live in older buildings with inefficient systems, many of which are in disrepair and waste energy. Most cannot invest in weatherization measures or energy-saving equipment for their own homes and many others lack options because they rent.

Congress designed the Low-Income Weatherization Assistance Program (WAP) to make low-income housing more energy efficient through grants to the states for a variety of weatherization improvements. The LIHEAP program has contained a weatherization set-aside since 1981 for the same purpose. Direct energy-assistance payments serve a short-term goal: to assure poor families a basic level of utility service. Weatherization programs invest in reducing energy use and costs by improving energy efficiency--a more complicated process but one with greater long-term promise.

Many studies have proven that weatherization measures can reduce poor peoples' energy use and costs significantly (potentially 20-40 percent) for up to 15 years. Two circumstances have hindered such efforts: funding levels inadequate to the task and poor performance of many weatherization measures.

Financing Weatherization Assistance

The federal government has failed to provide funding necessary to weatherize eligible low-income houses in a reasonable period of time. Funding peaked at $245 million in fiscal 1983 and fell to $144 million in fiscal 1987. From 1977 to 1984, WAP weatherized only about 1.4 million of the 14.4 million eligible homes. Bills introduced in the House and Senate in 1983 and 1984 illustrate the magnitude of need for low-income weatherization funding: they called for weatherizing all eligible units within ten years. The Congressional Budget Office estimated the total cost of such work at $28.5 billion.[1]

Moreover, Congress extended eligibility for the program in 1985 to match the criteria for LIHEAP, which expanded the number of allowable units to about 22 million. This change meant that the waiting period for work to begin was longer than ever. It is now evident that many of the housing units weatherized initially were done poorly. Because many weatherization measures are useful for 15 years or less, many units will need reweatherizing before all are completed. In addition, recent data have shown that households move in and out of eligibility as their incomes change, suggesting that dwelling units of eligible low-income people will vary over time. Again circumstances have increased the total number of units that need more weather protection.[2]

Congress has not funded the program at adequate levels for several reasons. Concern about the federal deficit has kept appropriations low. Also,

the level of funding required to complete the weatherization work is substantial. Often rental property needs work, which raises questions of federal investment in property owned by middle or upper-income landlords. Some members of Congress have expressed concern about the amount of real savings achieved from any weatherization effort.

Federal programs, however, provide most of the funding for weatherization. In fiscal 1985, federal funds represented $359 million of conservation resources (76 percent); states provided $38 million (8.1 percent) and private funds amounted to $75 million (15.9 percent).[3] Private funds came primarily from electric and gas utilities--most of it mandated by public utility commissions as required by law or regulation.

In fiscal 1984 and 1985, combined federal, state, and private sources provided $500 million, which weatherized about 500,000 units each year. Almost 25 percent came from state and PUC-mandated sources. With the federal deficit still high and a lack of energy consciousness, additional federal funding for low-income conservation measures remains unlikely in the near future. State oil overcharges monies represent one possible source of state supplemental funding; expanded utility involvement in weatherization also holds the potential of making a significant long-term contribution. (Both sources are discussed further below.)

Weatherization measures can be made cost-effective. They have inherent value in protecting low-income people from energy price hikes and in energy conservation. Weatherizing the homes of low-income people in all regions of the country, as soon as possible, remains a worthy public goal. Several federal and private studies (discussed later) have documented the savings in energy and expense that these measures can achieve.

Weatherization programs are among the most effective, dollar for dollar, in generating jobs and stimulating the economy. One study estimates that for every $1 million per year the federal government spent on energy conservation, 36 direct and 16 supporting jobs were created, and that the economic benefits would create other jobs indirectly, for a a total of 100 jobs.[4] In contrast, it is estimated that every $1 million per year spent on operating a new coal-fired electric power plant, only five jobs result.[5]

The federal government's weatherization programs basically are funding mechanisms; they make block grants to states. The states, in turn, oversee the actual conservation projects undertaken by their own crews or by subgrantees (usually local governments, tribal organizations, and community action agencies). For a more complete description of how assistance is channeled, see Appendix A.

Precise figures on sources of weatherization funding for 1986 and 1987 are not readily available. Most experts, however, believe that they will prove similar to those of 1985, the year of an exhaustive weatherization study, except that some states have begun to spend their oil overcharge monies. Federal funds through WAP, LIHEAP, and some utility programs continue to be the largest sources. State legislatures have appropriated some funds. Oil overcharge monies, while substantial, are a one-time source that states could spread out over several years. Some cities and local jurisdictions have supplied their own funds. But utilities continue to provide more funds than state and local governments.

Utility-Financed Programs

Utilities are logical sources for states to tap for more weatherization funding. Utilities contributed $46 million in 1984 and $76 million in 1985 (not including investments made by the Tennessee Valley Authority and the Bonneville Power Administration). Although 17 states reported utility-financed programs, only four states--California, Massachusetts, Minnesota, and Pennsylvania--invested in weatherization to any extent.[6]

Appropriateness of Utility Financing

Utilities have reasons to be interested in and opposed to offering conservation services. Electric utilities facing the need to produce more power to meet growing demand may favor paying for weatherization improvements. Helping customers save energy could keep them from having to invest millions in costly new generating capacity. Gas utilities, however, which do not face such capital-investment requirements, may view conservation investments as reducing the demand for gas, and hence their revenues. Few utilities have had experience in predicting how much energy these investments would save or the cost/benefit of such alternatives versus other alternatives. Most utilities also lack experience in managing conservation-investment programs.

The regulatory framework within which utilities operate often creates disincentives for conservation investments or prohibit them altogether. For example, public utility commissions allow electric utilities to earn a rate of return on capital investments in new generating equipment, but not on conservation investments.

The debate continues on the appropriate role for utilities in providing weatherization services. Some critics have argued that utilities have an unfair advantage over private contractors competing for weatherization work. In fact, the National Energy Conservation Policy Act prohibits utilities from installing weatherization measures for this reason. However, the act contains important exemptions; it allows utility-installation programs carried out by independent suppliers or contractors not subject to the utility's control.[7]

Others have criticized involvement of utilities in financing weatherization projects because they believe that it creates a "cross-class subsidy." Utility investments in weatherizing low-income homes, they argue, means that other ratepayers--residential customers and/or commercial and industrial customers--pay for an investment for which they are not eligible.

However, many utilities subsidize low-income households' energy use already, some by choice and others involuntarily. Some utilities offer lower rates or percent-of-income plans for low-income customers. Those without specific programs are allowed to recover customers' accumulated arrearages by raising the rates paid by other customers. Many utilities have experienced increased arrearages because government-imposed winter shutoff moratoria and other regulatory requirements to ensure winter heat have caused low-income households to build up large bills they cannot pay. Cost-effective weatherization measures could reduce the need for other ratepayers to subsidize customers directly or indirectly.

Ratepayers have objected that in effect they are subsidizing qualitative improvements in others' homes. Weatherization is more visible than

energy-assistance payments and thus raises more resistance, even though it lowers costs in the long run. Public information and/or hearings are crucial to making utility-financed weatherization programs for the poor more acceptable to the public.

As mentioned, some state public utility commissions have imposed conservation programs on utilities. Without enough market research or planning by utilities, the programs may be poorly designed and executed. Effective programs depend on utility understanding and acceptance of the need for these programs. But the rising costs of delinquent accounts have prompted many utilities to reevaluate their involvement in weatherization.

Functional State Programs

The California Public Utility Commission (CPUC) is allowed by statute to permit or require any electric or gas utility to set up energy-conservation programs. Accordingly, CPUC established energy conservation as the top priority for California utilities in connection with major utility rate proceedings in 1975 and 1976. CPUC decided that utilities' energy-conservation efforts would be a major factor in future rate proceedings and supply-authorization decisions.[8] This policy created incentives for utilities to design effective programs. As a result, California utilities had weatherized 235,000 homes at a total cost of $134 million by mid-1986. Another 700,000 low-income dwellings need weatherization, according to CPUC estimates.[9]

Utilities have considerable discretion in setting up programs. To protect the interest of ratepayers, CPUC must approve a utility's guidelines for eligibility of households, work standards, and provisions for inspections before work begins. Contracts are performance-based, that is, contractors are not paid until the work is completed satisfactorily.

The Pacific Gas and Electric Company set up a zero interest program (ZIP) in 1980. ZIP offered low-income customers a 50-month payback loan without interest to conserve energy. It encouraged participation by low-income, elderly, and non-English-speaking ratepayers by offering a 100-month payback period and allowance for up to $200 in minor home repairs (building shell repairs). It also hired the Califonia/Nevada Community Action Association, a group of 45 community action agencies, to determine the extent of low-income participation in the program.[10]

The Association found that low-income, elderly, and non-English-speaking customers would not participate in the program in substantial numbers. It suggested that providing free weatherization services would prove more cost-effective for the utility. In effect, the cost of financing ZIP loans over 100 months, plus estimated outreach, bidding, uncollectibles, and administrative costs would equal the cost of free weatherization. CPUC subsequently authorized utilities to provide weatherization improvements directly to targeted low-income households.

Pacific Gas and Electric's response was to set up a direct weatherization program in 1982. Measures include the ZIP's "big six" measures: attic insulation, weatherstripping of doors and windows, water heater blankets, low-flow showerheads, caulking, and duct wrap. Local governments and insulation contractors did an average of $600 worth of work per household.[11]

Edison, another California electric utility, designed and implemented an innovative, multi-phased outreach and conservation service funded by community grants and CPUC-approved rate increases. It attempts to reach a large cross-section of low-income customers by providing free conservation services through community organizations and local governments. Eligible customers with air conditioning or electric heating can receive free attic/duct insulation, weatherstripping, caulking, water-heater wraps, low-flow showerheads as well as evaporator coolers, replacement air conditioners, clock thermostats, heat pumps, heat-pump water heaters, whole-house fans, and precoolers. Each household received a free portable electric heater to encourage the heating of one room rather than the entire house when possible. Contractors also installed three energy-efficient fluorescent lamps. About 40,000 qualified homes received 400,000 free conservation devices or measures in 1984-1985.[12]

In late 1984, Edison began to replace refrigerators in low-income homes when it found they used more energy than any other appliance. Edison drew up a cooperative agreement with public housing authorities to provide energy-efficient refrigerators to their eligible residents. About 5,400 households received free refrigerators. Edison paid $300 for each, got a contribution of $100 per unit from the housing authorities, plus $35 each from the sale of old refrigerators for salvage.[13]

In Wisconsin, the Public Service Commission requires all "Class A" utilities to offer free weatherization services to low-income customers. Conservation measures are selected for each house that will pay for themselves in terms of saved energy over five years. Options include conservation measures, insulation, and efficiency improvements.[14]

The PUC ordered the Madison Gas and Electric Company to set up such a program. The utility does an energy audit of the dwelling, then recommends measures with an estimated five-year payback. The weatherization work is contracted out, then inspected by the program staff after completion. A study done of 41 homes weatherized in the first year of the program found that the company had spent an average of $2,000 on each house. Among the savings achieved was a 28-percent drop in natural gas use.[15]

The program of Wisconsin Gas Company in Milwaukee gives free energy audits and weatherization improvements to low-income households (below 150 percent of the federal poverty level) living in one- to four-unit buildings and using gas for space heating. The company arranges for the installation of infiltration barriers, replacement furnaces, and other measures with paybacks of five years or less, then conducts an inspection of the work upon completion. The program began in 1982 and weatherized 2,259 residential buildings at a cost of roughly $6 million. Wisconsin Gas weatherized 926 buildings in Milwaukee and 120 buildings in other company districts in 1985.[16]

Wisconsin Gas promotes the program to all customers on its guaranteed-service plan or low-income payment plan. It has advertised the program's features on the radio and in local newspapers and hired local community groups to do outreach and identify eligible households for the program. The company gives priority to those customers with the highest gas bills and lowest incomes.[17]

Additional State Financing

Legislative Authorizations

Michigan has one of the largest state-financed weatherization programs. The program was designed to make more funding available for low-income weatherization to achieve higher savings and complete more houses. The program has taken longer, however, than initially expected to make progress.

The state funds some low-income weatherization through its Home Repair and Weatherization Assistance Program. The state legislature authorized the program in response to soaring energy needs of poor people partially caused by the deep recession of 1981-1982. The state was not able to provide adequate funds to cover fuel bills for many low-income families; the PSC issued an emergency rule prohibiting winter shutoffs for families on public assistance, which cut into utility revenues.[18] Michigan selected a long-term strategy, weatherization, to reduce energy-assistance needs.

Households receiving Aid to Families with Dependent Children (AFDC) were the specific recipients of program help. Homes in the highest band of energy consumption were given first priority. The program was authorized to spend up to $5,000 per home on repair and weatherization costs following a specialized Residential Conservation Service audit conducted by a local utility. The subgrantees of the existing federal Weatherization Assistance Program install weatherization measures and private contractors do general repair and furnace work under a competitive-bid process.[19]

Each home is given barriers to infiltration and conduction, heating-system retrofits, and various general home repairs. A study of the first 59 homes completed showed that repair and weatherization cost an average of $3,518 per dwelling. Retrofits cut space-heating fuel use by 30 percent, for an average annual savings of $560 dollars. The average payback time for all improvements was 6.3 years. If associated costs including administration and program support also are counted, the total payback time for the houses studied is around eight years.[20]

Oil Overcharge Funds

Another resource available to states for weatherization programs is oil overcharge funds (see Appendix A for a history of the court actions and the Warner Amendment). States received these monies from the federal government under a court decision in U.S. v. Exxon Corporation and a settlement agreement in In Re Department of Energy Stripper Well Exemption Litigation, two of the largest enforcement actions ever brought. The federal government sued the oil companies for overcharging consumers during the era of price controls. States have collected about $3 billion since March 1986, with another $1 to $1.5 billion still to be collected.[21]

States can spend their Exxon money in any of five state-operated federal energy programs, including LIHEAP and WAP. Stripper Well funds can go to other programs, which accounts partially for the smaller amounts given to low-income energy programs. Details of how the states are spending their portions of the settlement appear in Tables 8 and 9.

Table 8

State Uses of Funds from Exxon Decision as of 11/30/87

Region and State	Total Fund Received (in millions of dollars)	Total Amount Allocated	Amount Allocated for LIHEAP	LIHEAP Percent of Total	Amount Allocated for WAP (in millions of dollars)	WAP Percent of Total
New England						
Connecticut	34.80	37.00	29.60	80	0.00	0
Maine	15.00	15.80	0.20	1	7.60	48
Massachusetts	70.00	70.00	6.00	9	46.00	66
New Hampshire	9.70	10.90	0.75	7	0.75	7
Rhode Island	8.00	8.00	1.25	16	1.34	17
Vermont	4.60	4.70	0.00	0	2.40	51
Total	142.10	146.40	37.80	--	58.09	--
Mid-Atlantic						
Delaware	9.90	6.40	--	0	2.00	31
Maryland	36.00	40.00	4.30	11	30.00	75
New Jersey	75.00	75.00	30.00	40	8.50	11
New York	159.40	163.10	14.50	9	30.00	18
Pennsylvania	96.50	82.40	61.80	75	--	0
Total	376.80	366.90	110.60	--	70.50	--
Midwest						
Illinois	96.00	115.00	40.00	35	62.55	54
Indiana	51.50	50.40	29.40	58	--	0
Iowa	27.40	17.68	--	0	3.20	18
Michigan	71.00	77.70	46.00	59	13.00	17
Minnesota	36.00	36.40	5.50	15	5.50	15
Ohio	79.50	44.90	--	0	33.30	74
Wisconsin	37.00	9.00	--	0	9.00	100
Total	398.40	351.08	129.90	--	126.55	--
South						
Alabama	32.00	32.00	5.00	16	5.00	16
Arkansas	25.90	25.90	3.70	14	2.10	8
District of Columbia	4.60	4.60	2.00	43	0.90	20
Florida	98.00	46.00	--		1.20	3
Georgia	46.50	55.50	21.00	38	14.70	26
Kentucky	23.40	0.00	--	0	--	0
Louisiana	51.40	54.00	2.50		11.50	21
Mississippi	28.30	29.40	2.27	8	7.25	25
North Carolina	47.00	27.50	6.60	24	7.40	27
Oklahoma	26.20	18.15	4.00	22	2.80	15
South Carolina	25.10	29.30	7.50	26	8.60	29
Tennessee	34.50	34.50	2.00	6	15.00	43
Texas	157.00	128.00	2.00	2	7.00	5
Virginia	53.20	8.00	1.50	19	4.50	56
West Virginia	12.90	3.77	2.00	53	1.30	34
Total	666.00	496.62	62.07	--	89.25	--

Table 8 (continued)
State Uses of Funds from Exxon Settlement

Region and State	Total Fund Received (in millions of dollars)	Total Amount Allocated	Amount Allocated for LIHEAP	LIHEAP Percent of Total	Amount Allocated for WAP (in millions of dollars)	WAP Percent of Total
West						
Alaska	8.30	5.50	--	0	4.00	73
Arizona	21.50	6.00	1.50	25	4.00	67
California	195.00	109.50	10.00	9	30.00	27
Colorado	22.60	22.60	--	0	4.70	21
Hawaii	14.40	14.50	--	0	4.00	28
Idaho	8.60	8.70	--	0	3.30	38
Kansas	24.00	6.84	2.23	33	0.34	5
Missouri	41.40	34.00	3.30	10	14.20	42
Montana	9.60	9.60	--	0	4.80	50
Nebraska	15.50	5.60	--	0	--	0
Nevada	8.70	9.76	5.57	57	2.23	23
New Mexico	13.70	9.61	3.00	31	2.50	26
North Dakota	7.70	8.30	2.90	35	1.30	16
Oregon	22.00	19.00	3.10	16	9.30	49
South Dakota	7.50	7.70	0.30	4	1.00	13
Utah	12.50	1.70	--	0	1.00	59
Washington	32.00	33.00	1.00	3	14.10	43
Wyoming	9.00	9.50	--	0	2.00	21
Total	474.00	321.41	32.90	--	102.77	--
Northeast	518.90	513.30	148.40	--	128.59	--
Midwest	398.40	351.08	120.90	--	126.55	--
Northeast and Midwest	917.30	864.38	269.30	--	255.14	--
South	666.00	496.62	62.07	--	89.25	--
West	474.00	321.41	32.90	--	102.77	--
South and West	1,140.00	818.03	94.97	--	192.02	--
U.S. Total	2,057.30	1,682.41	364.27	22	447.16	27

[1] Funds not allocated to LIHEAP or WAP can go to other federal energy programs operated by the states: the Institutional Conservation Program; schools and hospitals; outreach demonstrations; and energy planning through the State Energy Conservation Program; or the Energy Extension Service.

SOURCE: Calculations by Helen Gonzales, National Consumer Law Center, Washington, D.C., November 1987, based on telephone surveys, September-November, 1987.

Table 9

State Uses of Funds from Stripper Well Decision as of 11/30/87

Region and State	Total Fund Received (in millions of dollars)	Total Amount Allocated	Amount Allocated for LIHEAP	LIHEAP Percent of Total	Amount Allocated for WAP (in millions of dollars)	WAP Percent of Total
New England						
Connecticut	14.90	14.80	--	0	--	0
Maine	5.20	6.30	0.30	5	--	0
Massachusetts	25.50	0.00	--	0	--	0
New Hampshire	3.50	3.50	--	0	0.70	20
Rhode Island	2.99	0.00	--	0	--	0
Vermont	1.70	0.55	--	0	--	--
Total	53.79	25.15	0.30	--	0.70	--
Mid-Atlantic						
Delaware	3.70	0.00	--	0	--	0
Maryland	13.50	0.00	--	0	--	0
New Jersey	27.70	24.90	--	0	--	0
New York	65.70	70.00	--	0	7.60	11
Pennsylvania	33.90	0.00	--	0	--	0
Total	144.50	94.90	--	--	7.60	--
Midwest						
Illinois	39.20	41.00	11.50	28	--	0
Indiana	19.00	21.60	2.30	11	--	0
Iowa	9.70	8.50	--	0	--	0
Michigan	29.30	31.40	7.20	23	3.70	12
Minnesota	12.60	0.00	--	0	--	0
Ohio	32.30	19.20	--	0	--	0
Wisconsin	12.80	13.70	--	0	--	0
Total	154.90	135.40	21.00	--	3.70	--
South						
Alabama	13.30	13.30	2.27	17	--	0
Arkansas	11.40	5.60	0.50	9	1.20	21
District of Columbia	2.10	2.20	0.06	3	--	0
Florida	33.60	41.00	--	0	--	0
Georgia	20.26	17.26	3.20	19	--	0
Kentucky	9.70	0.00	--	0	--	0
Louisiana	17.00	17.00	--	0	--	0
Mississippi	12.58	12.28	0.93	8	1.24	10
North Carolina	19.60	19.60	--	0	--	0
Oklahoma	10.90	8.43	0.40	5	--	0
South Carolina	10.60	10.60	--	0	--	0
Tennessee	16.50	4.00	--	0	--	0
Texas	55.50	10.90	--	0	--	0
Virginia	19.50	0.00	--	0	--	0
West Virginia	4.85	2.50	--	0	--	0
Total	257.39	164.67	7.36	--	3.54	--

Table 9 (continued)
State Uses of Funds from Stripper Well Settlement as of 11/30/87

Region and State	Total Fund Received (in millions of dollars)	Total Amount Allocated	Amount Allocated for LIHEAP	LIHEAP Percent of Total	Amount Allocated for WAP (in millions of dollars)	WAP Percent of Total
West						
Alaska	3.50	0.00	--	0	--	0
Arizona	7.50	0.00	--	0	--	0
California	80.50	80.50	5.50	7	--	0
Colorado	8.00	8.00	--	0	--	0
Hawaii	5.20	1.00	--	0	--	0
Idaho	3.60	3.60	--	0	--	0
Kansas	10.00	0.09	--	0	--	0
Missouri	17.00	9.30	0.24	3	--	0
Montana	3.86	3.60	--	0	--	0
Nebraska	5.40	0.60	--	0	0.60	100
Nevada	3.50	6.40	0.44	7	--	0
New Mexico	5.60	4.80	0.00	0	0.10	2
North Dakota	3.00	5.50	1.00	18	--	0
Oregon	11.00	11.30	--	0	1.70	15
South Dakota	3.00	3.00	--	0	--	0
Utah	4.50	0.00	--	0	--	0
Washington	13.71	13.29	1.00	8	1.10	8
Wyoming	3.00	3.40	0.50	15	--	0
Total	191.87	154.38	8.68	--	3.50	--
Northeast	198.29	120.05	0.30	--	8.30	--
Midwest	154.90	135.40	21.00	--	3.70	--
Northeast and Midwest	353.19	255.45	21.30	--	12.00	--
South	257.39	164.67	7.36	--	3.54	--
West	191.87	154.38	8.68	--	3.50	--
South and West	449.26	319.05	16.04	--	7.04	--
U.S. Total	802.45	574.50	37.34	6	17.94	3

[1] Funds not allocated to LIHEAP or WAP can go to other federal energy programs operated by the states: the Institutional Conservation Program; schools and hospitals; outreach demonstrations; and energy planning through the State Energy Conservation Program; or the Energy Extension Service.

SOURCE: Calculations by Helen Gonzales, National Consumer Law Center, Washington, D.C., November 1987, based on telephone surveys, September-November, 1987.

Oil overcharge funds returned to the states were not intended as substitutes for federal help in alleviating the energy cost burden on the poor. Congress meant for oil overcharge funds to be paid as restitution to overcharged oil consumers, including commercial and industrial customers. The trial court adopted the principle that Congress included in the Warner Amendment, which requires oil overcharge funds spent to "supplement, not supplant" existing federal and state resources.

As of December 1987, states had received about 73 percent of the penalties paid. Many are assigning their oil overcharge funds for weatherization purposes. According to the most recent figures, states plan to use at least $869 million on either LIHEAP or WAP. Weatherization programs will receive more than half of those funds, about $463 million.[22] Some states are using these funds to supplement efforts to weatherize large multifamily buildings.

Financing Conservation in Multifamily Buildings

Weatherization of low-income rental units has proceeded slowly. Large apartment buildings require different techniques than single-family homes or small apartment buildings. Owners also face a range of impediments to financing energy-conservation measures. Lending institutions usually do not serve this section of the housing market. Those making loans have strict lending terms, such as strong financial position and positive cash flow from single mortgage holders. Because lenders want collateral for loan security, many low-income housing projects without mortgages are eliminated from consideration. Commercial banks are generally unwilling to lend to low-income landlords, particularly for amounts less than $50,000.[23] Some banks may be interested if such lending helps them comply with a Community Reinvestment Act provision requiring them to make loans in their local communities. Savings and loan institutions may make loans, particularly to existing mortgage holders who can lower the risk of defaults from high energy costs.

Trying to interest landlords in energy conservation also has proven difficult. The strongest incentive for landlords to invest in energy-efficiency measures is the prospect of lower operating and maintenance costs. However, the estimated impact of efficiency investments on a landlord's cash flow also must incorporate debt service for financing. Such investments can cut the return to the landlord until the measures pay for themselves. Some landlords buy the properties with the intention of holding them for a short time for tax advantages. Many do not wish to make investments that will take years from which to realize benefits.[24]

However, some incentives for financing large projects do exist. Certain Federal Housing Authority loan guarantees, such as Title 1B for loans up to $47,500 and Section 241 for loans over $10,000 make traditional lenders more likely to make second and third mortgages on qualified buildings.[25] Foundations and corporate investors can be a source of loan guarantees and principal write-downs as well.

Some large corporations have "program-related investments" through which they support community economic development. The Local Initiatives Support Corporation, the CIGNA Corporation, and Working Assets money market fund all have provided support. Although they have different criteria for risk

assessment and security requirements, they represent a potential source of funding for energy efficiency.

Community Energy Development Corporation (CEDC), a nonprofit Philadelphia organization, has developed creative financing strategies for weatherizing large buildings through partnerships with local lenders, foundations, corporations, and utility companies. CEDC provided energy-conservation measures to over 5,000 multifamily, low-income in two years. The corporation used loan guarantees, below-market rate loans, shared-savings financing, and leveraged certificates of deposit to help rental property owners.

The benefits of developing a corporate-community financing strategy include the following.

- More flexibility. Unlike government sponsored financing sources, corporate investors are more interested in meeting broad guidelines for investment than developing detailed regulatory requirements.

- Increased credibility with borrowers. Many borrowers shy away from government sponsored programs for fear of costly delays and reporting requirements.

- Access to additional sources of funding. Corporate, mutual fund, and pension fund investors are looking for socially responsive, secure, and high-yield investments for their funds.[26]

As discussed above, legislatures and PUCs are directing public and private utilities to provide energy conservation, particularly to low-income customers. Few are experienced in starting or servicing energy-conservation loans for multifamily units, because these loans require much larger capital commitments and hence more stringent underwriting criteria.

Energy Service Corporations

Nonprofit energy service corporations such as the Citizens Conservation Corporation in Boston and the Energy Resource Center in St. Paul have experience in originating direct loans, which they resell to state housing financing agencies. These methods have more flexibility, speed, and less expense in transaction costs than private lenders allow.

The Citizens Conservation Corporation has had substantial success in weatherizing apartment buildings. CCC helps building owners obtain loans for conservation measures and installs an entire package. Each month the building owner pays CCC an amount based on past fuel costs, which CCC uses to cover the fuel bill and pay off the loan. Any money left over is put into a rebate account and distributed among the tenants and the owners. The program also includes educational programs to encourage tenants to conserve fuel.[27]

CCC was founded with a grant from the Citizens Energy Corporation, a nonprofit oil corporation. It also has received grants from the Massachusetts Office of Energy Resources and the Bay State Gas Company. CCC hopes to pay its operating expenses from fees for its services, but requires a good deal of capital in order to guarantee loans.[28]

Aside from providing rebates, the program is reported to have increased tenant comfort. Owners benefit from the rebates and the improvements to their buildings. CCC has found that it can reduce energy use by 35 percent with an average investment of $1,050 per unit, and that it can generally pay back its loans within five to seven years.[29]

Energy service corporations can help multifamily building owners secure loans to contract for conservation measures on their own. The Minnesota Energy Improvement Loan Insurance Program set up a revolving fund to guarantee loans made for energy conservation. The state provides the funds to guarantee loans made by private lenders. Thus the lenders can make loans to building owners who might be perceived as marginal credit risks. The lender shares some of the responsibility for defaults and must approve all loans. The program was intended primarily to benefit residents of older or smaller multifamily buildings, who tend to be in low or moderate-income groups.[30]

Northern States Power and the City of St. Paul formed the Energy Resource Center (ERC), a private, nonprofit corporation in 1981 to develop energy-conservation projects. It is supported by public grants, foundation loans, utility funds, and city capital and capital measures.[31] In early 1983, drawing on two and one-half years of experience with single-family projects, ERC set up a multifamily-building-conservation program based on a shared-savings mechanism. ERC conducts an energy audit to determine how much could be saved and guarantees that amount to the owner. It gives owners a grant equal to 20 percent of the weatherization expenses and loans the remaining 80 percent. With the savings that accrue from lower energy bills, the owner pays off the loan, which averages $10,000, on a monthly basis plus a share of ERC's annual administrative costs (about $40,000). Any savings remaining are split equally between the owner and ERC.[32] The program assures the ability of the weatherization work to achieve the savings by scheduling, supervising, and inspecting the work. Measures usually installed lower gas use for space and water heating.[33]

To be eligible, owners must rent five or more units and have a good credit rating. The building must show potential for cost-effective weatherization. Of the 1,200 eligible rental properties in the St. Paul area, ERC has completed work on 30 (about 500 units). Its conservative predictions have proven quite accurate so far; in 18 buildings actual savings have exceeded the original predicted amount by 4.2 percent. Savings ranged from 29.6 to 28.4 percent of gas used. ERC has concluded that the shared-savings approach is profitable only in properties that average more than $6,000 in annual heating bills.[34]

The City of Chicago and Peoples Light, Gas and Coke, a natural gas utility, jointly fund a loan program for energy-conservation improvements, the Chicago Energy Savers Fund. The Fund will spend $15 million over three years--$10 million from Peoples and $5 million from the city's Community Development Block Grant. It uses the money to lower the interest rate on loans for weatherization measures.[35] Loans are available to low to moderate-income single-family and multifamily building owners but are targeted primarily to the city's rental housing stock.

The Fund hopes to preserve affordable rental housing in Chicago with modest investments, provide community-based jobs, lower the drain on the city treasury from energy assistance, and help ease the burden of energy costs for low and moderate-income families. The program aims to help 7,000 multifamily

units and 2,500 single-family homes in three years at an average cost of $1,500 per unit.[36]

The program provides a free computerized audit for participants and works with the building owner in sending out specifications for the work and processing the bids. A Fund technician inspects all work done before payment is released. The program also monitors the performance of the new conservation measures for one year to assess actual savings. A preliminary study of the first three multifamily buildings completed showed energy savings of 26 to 42 percent, somewhat better than the projections in the audit. Average costs were $1,242 per unit.[37]

Financing Conservation in Public Housing

Public housing units comprise 20 percent of all low-income rental units nationally and 40 percent of low-income multifamily buildings.[38] About 3 million poor families, more than one-third of which include an elderly or handicapped person, live in public housing. The federal government subsidizes most of the energy operating costs in this housing. However, regulatory impediments in federal statutes and a lack of financing has kept public housing operators from making improvements to save money or upgrade the units.

The U.S. Department of Housing and Urban Development established new public housing energy regulations in 1985 which retained a substantial disincentive for regulated housing authorities to invest in energy efficiency. The regulations did contain provisions that allow operators to repay efficiency investment loans, if they could finance them. Specifically, the new regulations allow Local Housing Authorities (LHAs) to establish and administer their own utility-allowance systems--the fund tenants use to pay for heat and other household energy. The new standards have four main elements:

- allowances can distinguish between the dwellings that have and have not received conservation retrofits;
- allowances no longer have to be based on actual past utility-usage data;
- significant differences in allowances based solely on the type of utility metering no longer are required; and
- allowances can reflect the conserving or efficient behavior of tenants.[39]

The new regulations sever the link between the housing authority's source of funding, the Performance Funding System (PFS) provided by HUD, and the utility allowance funds the LHA provides to the tenants. While the LHA's award of utility operating costs to tenants does not have to be based on actual usage data, the PFS continues to be based on historic averaging periods. HUD determines these figures based on a three-year period of actual consumption, which is always at least two to five years old.[40]

With these regulatory changes, a creative LHA can obtain greater cash subsidies from HUD to help finance energy improvements at little or no cost to tenants or itself. Energy operating expenses usually consume 40 percent of an

annual LHA operating budget in a cold climate. This energy efficiency investment for a typical 200-unit project could be paid for in the following way. The LHA estimates total annual energy costs at $180,000 (assuming $900 per unit household energy expenses). It could install heating-efficiency investments to all 200 units for about $200,000 ($1,000 per unit), expecting to save 30 percent of its yearly energy bill. If HUD financed the cost of more efficient appliances under existing regulatory provisions, it could save another 12 to 13 percent. Assuming that a grant covers one-half of the cost of the investment and a zero-interest loan covers the other half, the LHA could retain $113,400 in energy savings over four years--enough to repay the $100,000 loan, as shown in Table 10.

Table 10
Potential Energy Savings from
Efficiency Improvements in a 200-Unit Building

Year	PFS Base Years Calculation	PFS Amount Received	Utility Expenses	Savings	50 Percent Savings
		(in thousands of dollars)			
1986	1982-1984	180.0	180.0	0.0	0.0
1987	1983-1985	180.0	104.4	75.6	37.8
1988	1984-1986	180.0	104.4	75.6	37.8
1989	1985-1987	154.8	104.4	50.4	25.2
1990	1986-1988	129.6	104.4	25.2	12.6
1991	1987-1989	104.4	104.4	0.0	0.0
TOTAL	1987-1991	748.8	522.0	226.8	113.4

SOURCE: Steven Ferrey, "Financing Energy Efficiency in Public Housing: Innovative Regulatory Opportunities," Proceedings from the ACEEE 1986 Summer Study on Energy Efficiency in Buildings, Volume 4: Incentives (Washington, D.C.: American Council for an Energy-Efficient Economy, August 1986), p. 4.56.

Several sources of financing such improvements in public housing exist. HUD itself has three financing programs for capital costs: Comprehensive Improvement Assistance Program (CIAP) funds, development funds, and operating reserves. Congress created CIAP funds in 1968 for upgrading older public housing stock. When used for energy-efficiency investments, projects must conform to HUD standards on conservation and modernization. As of 1985, HUD allows only 10 percent of each region's CIAP used for "special projects," including energy-efficiency measures. LHAs do not have to repay CIAP grants,[41] but HUD requires tenant particpation before the award of funds.

HUD awards development funds to LHAs for comprehensive redevelopment of a project, which can include energy-efficiency improvements. They must conform to HUD minimum property standards or HUD minimum design standards for rehabilitation for residential properties, and meet HUD's prototype cost limitations. LHAs can also use their operating reserves to fund energy-efficiency investments. Several LHAs have excess funds. HUD does not take back nonutility operating reserves.

The above scenario suggests ways to manipulate the changes in regulations applying to LHAs. It is based on a number of optimistic assumptions including the financing of half the investment by a grant and half by a zero-interest loan. It also assumes that substantial energy savings are realized, that HUD pays for more energy-efficient appliances, and that substantial energy savings continue to accrue at the same level for at least four years.

Substantial disincentives continue to exist, however, for LHAs to invest in energy efficiency. Under the current Performance Funding System, a local housing authority can lose money as a result of conservation retrofits even if they have a short payback period. A recent evaluation concluded that an LHA lost money under three different conditions:

- the retrofit system required more expensive maintenance than the pre-retrofit system (LHAs receive no subsidy supplement for new maintenance costs);
- the LHA financed retrofits with general operating subsidies not reimbursed by HUD; and
- the retrofit involved fuel switching or metering conversions.[42]

In all the cases studied, HUD rapidly took back energy savings produced by the retrofits. LHAs received little if any of the savings, sharply diminishing any incentive for conservation investments. Without special incentives such as utility rebates, LHAs found third-party financial arrangements with energy service companies unattractive. HUD should change its Performance Funding System in order to encourage LHAs to invest in energy-efficiency measures.

Effective Weatherization Measures

The strongest argument for conservation is its ability to save energy and the limited incomes of residents. However, weatherization improvements often fail to reach this goal. A recent study by the U.S. General Accounting Office (GAO) reviewed the results of ten state studies and a U.S. Department of Energy nationwide study that reported savings of 8 to 22 percent.[43] GAO concluded that seven of the ten state studies were unrepresentative; in many cases the sample covered only a small area of the state. Sampling inadequacies, such as a lack of a random sample, were found in several. Other studies gave inadequate consideration to fuel use and/or climatic differences. The three remaining state studies and the DOE study reported energy savings of 10 to 14 percent.[44]

These findings are consistent with two studies concluded by the Oak Ridge National Laboratory. Oak Ridge documented average energy savings of 11 percent in Minnesota and 15 percent in the Pacific Northwest.[45] These studies found

that energy savings averaged only about two-thirds of that predicted. Improper installation of weatherization measures and/or behavioral changes, such as heating more rooms or increased thermostat settings, may account for much of the difference between predicted and actual savings.

A more recent report by the National Association for State Community Services Programs concluded that for the "nearly 500,000 households weatherized each year, approximately 13 percent of their home energy costs is saved."[46] That amount could be improved upon. For the typical LIHEAP recipient in 1984, this savings amounted to $137, or about half the average LIHEAP payment. Moreover, it will continue to reduce the energy bill over many more years.

Need for More Research on Techniques

Researchers and practitioners have developed new methods and techniques for weatherizing buildings over the last decade. While this knowledge is not complete, it has produced the means to achieve higher levels of energy savings. For example, weatherization experts have found that increasing furnace efficiency is particularly cost-effective in many instances. More information is needed in many areas, however, especially in the reliability of asessments on expected versus actual energy savings.

> The substantial discrepancy between audit predictions and and actual energy savings in individual homes suggests the need for careful monitoring to determine the factors that account for these differences. Results of such tests may indicate ways to improve energy audit predictions, retrofit techniques, and the training of auditors. The results may show the importance of attention to detail in installation of measures. . . . We do not have an accurate picture of the extent to which behavioral changes versus efficiency improvements reduced residential energy use during the last decade.[47]

Because of wide variations in climate, the U.S. contains very diverse housing stock that operates on many types of heating fuels and equipment. Some institution or agency should research the best combination of retrofits for different types of buildings that combine the most cost-effective shell and improvements in mechanical equipment.[48] There would be great benefit as well from research on the actual lifetime performance of weatherization measures. Assumptions on the long-term performance of conservation measures should be tested in laboratories and, more importantly, in homes weatherized. For example, responsible public agencies as well as building owners want to know how quickly attic insulation degrades over its predicted lifetime of 30 years.

Even with better knowledge of which measures work and for what period of time, public policymakers still have to make difficult choices. There is not enough weatherization money available from any combination of sources to do all that is desirable. Because such large numbers of homes need weatherizing and the resulting energy savings advocates of such programs must decide how much to spend (i.e., how much weatherizing to do) per house, and how to target limited funds to weatherize in greatest need. Both options have drawbacks.

Spending more per home probably would result in greater energy savings, but would serve fewer homes. The General Accounting Office reported that

states have established cost limits per dwelling ranging from $1,000 to $3,000.[49] GAO believes that if DOE set limits on measures installed to those that repay costs through energy savings in a given payback period (say, seven years), state programs would emphasize the most energy-efficient and cost-effective measures. GAO argues that these requirements would bring

- maximum potential energy savings per dollar spent;
- a lower average expenditure per unit in many states; and
- more dwellings weatherized per year, but not to the same extent.[50]

Opponents to such a payback standard argue that it could eliminate optimal weatherization of units in particularly bad repair or in which heating equipment was needed in addition to building-shell improvements. However, if this standard were applied to the total of all homes weatherized in a particular year, rather than on individualized basis, it might be useful.

The GAO report did not explore the possibility of monitoring state programs to see if they met payback standards. Energy savings achieved initially could decline substantially over the life of the investment. Estimated payback might not, in fact, occur. Energy use is a function of customer habits as well as continued maintenance of the building and heating equipment. A turnover in occupancy could change energy use patterns. However, if a method could be devised to establish a payback assessment that did not add much to a state's reporting burden and was based on savings achieved, such a standard could contribute to quality control.

The rest of this chapter discusses the results of studies on the most cost-effective weatherization techniques and the particular problems associated with conservation of various segments of the housing stock--single-family and multifamily housing and mobile homes. It includes a short discussion of quality control and service limiters.

Single-Family Homes

The largest number of low-income homes weatherized are single-family homes. In 1984, single-family detached homes accounted for 8.9 million of the 17.6 million eligible for federal weatherization aid (based on DOE's Residential Consumption Survey). Seventy-one percent of all units completed by Weatherization Assistance Program funds from fiscal 1978 through fiscal 1985 were single-family homes;[51] 54 percent were owner-occupied and 17 percent were rented.[52]

Weatherization Techniques

The measures generally accepted as most cost-effective and applicable to a wide range of single-family houses are: attic insulation, in cases where the attic is either marginally insulated or not insulated at all; insulation of water heaters; elimination of major infiltration gaps; and various methods of improving or retrofitting deteriorating or inefficient heating systems. However, research in published studies has underscored a more important point. The value of any particular measure was difficult to evaluate. Programs that

used a variety of techniques and did a substantial amount of work per house were quite cost-effective.

A study of Massachusetts' programs found that "complete weatherization" with a payback time of less than three years was one of the most cost-effective options (see Appendix B). Retrofits included a wide range of weatherization, heating, and hot water options. The average expenditure per house was $1,413; savings averaged 28.4 percent of fuel used to heat living space.[53]

Researchers from the National Bureau of Standards studied "optimal weatherization" techniques in low-income houses across the country, not just in colder climates. The project measured different methods and applications, spending about $1,610 per unit. The retrofitted houses averaged 41 percent savings of their heat use. The report on the project noted that fuel prices had increased since 1977 when the work was done. Improvements thus would pay for themselves faster and more conservation would become cost-effective as prices increased.[54]

Energy used for heating space and water account for approximately 60 percent of the total amount consumed by residences nationwide.[55] Data from 1981 show that these uses represented 58 percent of low-income families' total energy costs that year, compared to 51 percent for families with incomes over $25,000.[56]. Reducing the amount of energy--and income--lost through heating space and water should be a major goal of weatherization programs.

The most effective conservation measures for residences fall into four categories: the reduction of infiltration; the reduction of conductive heat loss (through uninsulated roofs or single-layer windows); improvements in heating systems; and improvements in hot-water heating systems.

Blocking Infiltration

Infiltration is the entry of cold air through materials and uncovered spaces. It can be reduced by caulking and weatherstripping doors and windows; replacing broken windows; identifying and closing gaps in a building's outer shell; and sealing unused electrical outlets, attic hatchways, and other places where unheated air can mix with heated air. Most weatherization programs do extensive caulking and weatherstripping. They are relatively inexpensive measures that lower heat loss and make homes more comfortable by reducing draftiness. The Pacific Gas and Electric Company installed weatherstripping and caulking in almost all the low-income homes weatherized by its ZIP program,[57] mentioned earlier. The Massachusetts weatherization assistance program also included caulking and weatherstripping in its program. A study of the Massachusetts program found that "temporary materials," such as rope caulk and plastic storm windows saved about 11 percent of heating costs and had a simple payback period of less than a year.[58]

Weatherization technicians estimate, however, that only 30 percent of infiltration occurs through doors and windows;[59] 70 percent is due to gaps in the outer shell. The Wisconsin Energy Conservation Corporation (WECC) puts the sealing of large gaps at the top of its ranked list of cost-effective weatherization measures. WECC recommends other ways to reduce major infiltration problems as well (see Appendix C). WECC based its rankings on both actual and calculated savings. A study by the Lawrence Berkeley Laboratory of the cost-effectiveness of various retrofits in buildings across

the country, on the other hand, did not include gap-sealing in its list of proven cost-effective measures.[60]

Some projects use a "house doctor" program developed at Princeton University to diagnose areas where a house is losing heat. The house-doctor program involves:

- diagnosis of a house with specialized equipment (such as a "blower door," infrared camera, and a heating-system combustion analyzer) to locate air-infiltration sites, thermal bypasses (places where heat moves around rather than through, insulation), convection loops (cyclical air-movement patterns that bring in cold air and pull out warm air) and heating-system inefficiencies;

- fixing simple problems through the application of sealants, weatherstripping, and small amounts of insulation, as well as simple adjustments to heating and hot-water systems; and

- suggestion of major weatherization measures such as burner replacement or attic insulation needed to make the structure more weather-tight.[61]

One experiment found that house doctor treatments recommending relatively low-cost measures reduced natural gas use by 15 percent and had a payback period of seven years.[62] Massachusetts weatherization staff found that a house-doctor program alone was not as cost-effective as the standard weatherization package, and recommended that it become a low-priority measure in the state's energy-conservation programs. The study suggests, however, that the use of blower doors might be a cost-effective way to find major leaks.[63] The WECC study also recommends the use of blower doors.[64] Blower doors also can measure the overall "leakiness" of a house and predict the effectiveness of infiltration measures.

Infiltration-reduction measures must be chosen carefully to avoid sealing the house too tightly. Limiting air exchange, while saving energy, can cause indoor air quality to deteriorate. Kerosene space heaters or fireplaces need adequate ventilation to keep dangerous fumes from building up. Carpets, furniture, even household cleaners also can emit toxic gases which can be harmful if the house does not have enough air exchange. Radioactive radon gas found recently in building materials and in the ground in some ares, can build up to dangerous levels if houses are sealed too tightly.[65] Tight sealing also traps excess moisture, which can degrade insulation or increase the thermal conductivity of the house, increasing fuel consumption.

Several studies give standards for infiltration reduction. These standards usually are expressed either in units of natural air changes per hour (ACH) or in units of air changes per hour at 50 pascals (ACH50)--used when a house is pressurized with a blower door. The ideal level of infiltration varies from region to region based on many factors, especially moisture which can be a major cause of deterioration or increased conductivity.

Reducing Conductive Heat Loss

Good insulation and well fitting storm doors and windows are the best measures to cut conductive heat losses. The Lawrence Berkeley study found that

attic insulation was cost-effective in all retrofit projects, irrespective of structural or demographic characteristics, or climate.[66] WECC ranked insulation of attics with less than R-4 insulation second in priority, while insulation of attics with between R-4 and R-19 was given a lower priority. It recommended that attics be insulated to R-38.[67]

Several studies also recommended sidewall insulation. The Massachusetts study found that the state used it often in the homes its projects weatherized completely.[68] WECC ranked sidewall insulation fifth on its list of cost-effectiveness measures. Insulating walls also can cause problems for residents, however. In houses with solid masonry walls, for example, the insulation either affects the outside appearance of the house or takes up space on the inside. Contractors may have less experience installing insulation in walls than attics, which could affect the quality of the work.

Insulation of floor and foundation areas is less cost-effective than the areas discussed but is included in some comprehensive weatherization programs. Insulation of floors above crawl spaces, sealing and insulation of sill boxes, and insulation of foundation walls are sixth, eighth and fourteenth (last) on the WECC ranked list. Sill insulation was part of Massachussetts' complete weatherization package in about half the homes treated.[69] The NBS Optimal Weatherization program frequently used R-7 insulation for basement walls.[70]

Storm doors were an option in the complete weatherization program in Massachusetts.[71] They were not installed frequently, however. Storm doors specifically are not recommended by WECC.[72] Storm windows, however, are thirteenth on its ranked list. The Optimal Weatherization program installed both storm doors and storm windows in some cases.[73]

Heating Living Space

Space-heating systems include the furnace and the heat distribution mechanisms. Major heating-system retrofits can be very cost-effective. The Massachusetts program achieved very good results by replacing burners in about 25 percent of its homes. The outside study of the program found energy savings of 18 percent, a figure close to those of similar programs.[74] The payback time for the program was less than two years. The Lawrence Berkeley study mentions furnace retrofits as particularly effective for low-income single-family homes.[75]

The Minnesota oil retrofit program evaluation for fiscal 1982 found that heating system retrofits reduced oil use by 26 percent for the average investment of $565. In fact, the study concluded that heating-system retrofits were about four times as effective as building-shell weatherizations done by federal WAP program, which cost about $1,068, and cut energy use 13.4 percent. Combined installations cost WAP about $1,900 and cut energy use about 29 percent.[76]

Cleaning and adjustment of the heating system ranked fourth on the WECC list, which recommends installation of vent dampers to conserve heat when the system is not in use. Other studies put less emphasis on heating-system adjustments. The Massachusetts program, in particular, found the results of burner tune-ups disappointing. The study, however, explains some "tune-ups" were merely cleaning operations, and theorized that fuel savings might improve if burners were adjusted properly. The study also concluded that burner

tune-ups could reduce the long-term furnace maintenance costs and might be more cost-effective than initial calculations indicated.[77]

A related way to increase heating-system efficiency is insulation of heating ducts and pipes located in unheated areas. Similarly, insulation of hot-water pipes can make the hot-water system more efficient. A National Bureau of Standards report on energy-conserving mechanical options recommends insulation of ducts and pipes highly.[78] This option ranks ninth on the WECC list and was used frequently by the Optimal Weatherization program.[79] Lowering residential temperatures also reduces energy use of the heating system. Some projects have installed timed thermostats to keep temperatures down at night or during the day if the house is empty.[80] The Optimal Weatherization program used this technique many times.

Water System Insulation

Several studies recommended insulation of water heaters, including the Massachusetts program and Pacific Gas and Electric Company's Direct Weatherization program.[81] Hot-water system measures are third on the WECC ranked list, which recommended insulation of water heaters and lines, lower operating temperatures, and installation of low-flow showerheads.[82] The Lawrence Berkeley study proved these measures cost-effective. The Optimal Weatherization program also wrapped ducts and pipes in a large number of buildings.[83]

Multifamily Buildings

A large proportion of the country's low-income population (6.7 million of the 17.6 million eligible, or 38 percent) lives in multifamily buildings.[84] Most low-income residents rent units in multifamily buildings; arranging for weatherization assistance in these circumstances poses special problems for planners and funders. They must weigh offering incentives to landlords and calculate more complex measures of costs and benefits. In the actual installation of conservation measures, however, weatherizing small (two to four-unit) multifamily buildings differs only slightly from the treatment of single-family houses. About 19 percent of eligible families live in small multifamily buildings; 21 percent of those buildings had been weatherized by 1984.[85]

Low-income families living in buildings of five or more units account for 18.8 percent of those eligible for assistance. Only 9.2 percent of those units had been weatherized by 1984.[86] Several obstacles exist to weatherization of larger buildings, especially the opposing interests of tenant and landlord over control of property, payment of fuel bills, and building operation. The benefits of increased fuel efficiency also split over owners' and tenants' interests. In some buildings, tenants pay their own fuel costs; in others, the owner pays for space and water heating but not electricity. In still others, the owner pays all energy costs. Owners' willingness to invest in energy efficiency depends on many other factors, including the type of building material (frame or masonry) type of heating/cooling system (central or individual units), and even the owner's presence as a resident.[87]

Frequent changes in both landlords and tenants present other problems. According to the 1980 census, almost half of all renters had lived in their present homes for one year or less. In contrast, half the homeowners had lived in their homes for ten years or more.[88] Problems are even more acute with nonresident landlords, many of whom are reluctant to invest in deteriorated buildings or those needing a wide range of improvements.

As mentioned earlier, owners of large buildings with poor tenants have great difficulty obtaining loans for energy-efficiency investments. Banks often require evidence of financial stability and positive cash flow which eliminates many of these building owners from qualifying. Even if they could get financing, the relatively high interest rates and short terms of building loans further discourage owners from such investments.[89] Aside from financial barriers, owners often lack reliable building-specific information on the performance and cost of retrofit measures on which to base a decision.[90]

Weatherization Techniques

Cost-effective conservation in large buildings requires different techniques than those used in smaller buildings. The relatively large number of windows in many of these buildings increases the value of double-glazed window installations and other methods to deal with conductive losses. The larger scale of mechanical systems may lead to greater losses in the distribution of heat and hot water. Insulation of these systems, plus economies of scale, may make operational changes and mechanical retrofits more cost-effective for larger than for smaller buildings.

The smaller surface area of these buildings relative to living areas, plus the partitioning between units, cuts energy loss from infiltration. An Ecotope, Inc. study found that infiltration rates tend to be lower in multifamily buildings than in single-family homes built to the same standards.[91] Measures to reduce infiltration usually are not recommended in large buildings except for caulking and weatherstripping windows and doors--inexpensive measures that reduce draftiness. Caulking and weatherstripping are recommended by the Wisconsin Voluntary Standards program,[92] and are required by the state of Minnesota for its programs.

The relatively large window-surface area of multifamily buildings makes storm window additions a more effective choice for them than for single-family houses. Both the Wisconsin Voluntary Standards program and the Minnesota program recommend storm windows.[93] The Ecotope study suggests that they are the most cost-effective conservation measure available for electrically heated buildings.[94]

The larger size of heating and hot-water systems makes mechanical and operational changes some of the most cost-effective in large buildings. One study found that an apartment complex lowered its energy use for space heating 40 percent by reducing steam pressure, adjusting the zone controllers, and extending the night-setback hours. This was essentially a no-cost operation.[95]

The wide variety of mechanical options--including vent dampers, burner retrofits, tuning, and derating--available for single-family homes also is available for larger buildings. Balancing the distribution of heat in large buildings also saves energy and money. When heat is distributed unevenly, the

heating system has to work harder to keep the coldest apartment reasonably warm. This results in the overheating of other apartments. A study by the Minneapolis Energy Office found that rebalancing the distribution could save as much as 15 to 25 percent of heating costs in single-pipe steam-heated buildings.[96] The simple payback time for rebalancing was estimated at two years.

Buildings heated by circulating hot water can benefit from outdoor resets--devices that vary the temperature of water in the heating system based on the temperature outside. When less heat is needed, the water in the heating system is not kept as hot. This reduces the loss of heat in the distribution system and limits the possibility of overheating by tenants. A study in Minneapolis concluded from measured savings that these devices have a payback period of less than a year in buildings with cast-iron boilers.[97] The method probably has potential for other kinds of circulating hot-water systems.

Adjustments to hot-water systems are relatively more important sources of energy savings in some larger buildings than smaller ones because one system heats many units massed together. A study in Seattle, Washington, found that water heating was the most important component of annual energy consumption in multifamily buildings.[98] Reducing hot-water temperatures and installing low-flow showerheads are effective because of the relative importance of hot-water heating in energy consumption and because hot water is included in the rent in most large buildings, giving the users little incentive to conserve.

Lighting measures are rarely mentioned in connection with single-family energy conservation, but are recommended for multifamily buildings by the Mass-Save audit.[99] Lowered light levels do not necessarily detract from public areas, which often are lighted all the time, and there is no real need for the quality provided by incandescent lighting in these areas. There are some economies of scale in wiring for fluorescent lights in larger buildings that are not found in smaller ones.

Mobile Homes

Mobile homes make up about 6 percent of the country's existing housing stock, and 10 to 15 percent of new dwellings.[100] They house a disproportionate number of low-income residents because of their relatively low cost. In 1984 14 percent of LIHEAP participants and 9 percent of eligible households lived in mobile homes.[101] Mobile homes represent more than 80 percent of new single-family housing priced under $35,000.[102] Residents may pay higher fuel prices because their electricity use is higher, and liquefied petroleum gas for heating is relatively expensive.

Weatherization Techniques

The compactness of their design makes mobile homes less amenable to retrofits than site-built housing. The poor performance of retrofits suggests the need for greater research. Information on retrofit effectiveness is generally inadequate given construction differences in mobile homes; metal shells, thinner walls, unprotected floors and other unique factors.[103] The average thermal performance of the existing stock of mobile homes is almost 25 percent lower than that of single family homes.[104] Thirty-nine

high-efficiency mobile homes monitored in the U.S. and Scotland used only 20 percent of the space heating required by mobile homes meeting current HUD standards.[105] Since mobile homes are an inexpensive form of housing and therefore often used by low- and moderate-income families, it is particularly important to improve the energy performance of new ones. Although this would not solve the problem of inefficient existing mobile homes, it would reduce future problems relatively inexpensively.

Insulation standards for new mobile homes currently are lower than those for site-built homes. It is estimated that raising their standards to meet those of the Farmers Home Administration for site-built homes would lower energy use about 50 percent in most of the country.[106] The payback period on the cost of extra materials would be less than three years "in virtually all climate zones."[107] One study suggests that a program to alert consumers to energy costs would raise energy-efficiency in new mobile homes. Such awareness might encourage dealers to use energy efficiency as a selling point. More labelling requirements also could help the consumer weigh the benefits of buying an energy-efficient home.[108]

Weatherizing mobile homes has produced limited successes. In a retrofit study in Minnesota, conservation measures for mobile homes were found to have a payback time of more than 16 years. A parallel program for site-built homes found a payback time of about 11 years. The options considered for the program were wall, floor, attic, and basement insulation; glass repair and storm windows; water-heater insulation; caulking and weatherstripping; and furnace work.[109]

The Wisconsin weatherization program found that high moisture level frequently was a problem in mobile homes, and that infiltration-reduction measures actually sealed in more moisture. In cases where moisture was not a problem, the study recommended infiltration reduction as the most cost-effective weatherization measure. Other measures recommended (in order of estimated cost-effectiveness) included insulation of water heaters and water lines, floor and ceiling insulation, furnace tuning and retrofitting, and storm windows. All of these measures were estimated to have payback times of less than ten years in homes where installation was appropriate.[110]

Quality Control

The foregoing discussions shows that the effectiveness of various weatherization projects varies tremendously. Low-income weatherization programs can achieve high rates of return on investment and energy savings of 30 percent or more, but the results are poor in too many cases.[111] Although no definitive research exists is this area, the quality of workmanship and materials must explain part of this variation.

Caulking, for example, usually is an option in low-cost/no-cost weatherization programs. Often such programs are reported achieving no significant savings, while at other times savings estimates range up to 10 percent, with good payback times. The quality and application of materials probably play a large part in this variation.

The Tennessee WAP shows how program quality can be improved. The state now coordinates its low-income weatherization efforts with the Tennessee Valley

Authority. Part of the TVA's contribution is quality assurance; it sets standards for materials and workmanship and maintains a list of contractors who do good work.[112] TVA inspects the weatherization work before the state releases the payment.

The lowering of energy demand through weatherization benefits TVA. The utility estimates costs of up to ten times more per kilowatt to build new generating facilities than to reduce demand through conservation. TVA plans to avoid building new plants before the year 2000; its best interests are served not only in carrying out the conservation program but also in ensuring that it achieves actual savings. The state reports that cooperation with TVA has improved the quality of work greatly.

An evaluation of state and utility weatherization programs in Wisconsin concluded that the utility program cost less and achieved higher average savings than the state-run program. In 1983, the state program helped 4,000 households at a total cost of $9.0 million, or about $2,200 per job. The utility program weatherized 2,090 homes at a cost of $4.0 million, or $1,730 per job.[113]

There were significant differences between programs. The state program prescribed a set of measures to be installed. Because of the demand for services and limited funding, families often had to wait several months before the state installed weatherization measures. The utility program audited the home, had contractors bid on the job, and paid the contractor only after a post-installation inspection by a utility energy auditor. It concentrated efforts on heating equipment--both furnace and hot-water heater--in contrast to the state program. The utility program required that the measures installed have a simple five-year payback and provided services within several weeks at a maximum. The state program saved an average of 10.8 percent in energy use in the houses (according to available data) versus 19.8 percent for houses weatherized by the utility program.[114]

Service Limiters

Some utilities are using service limiters--mechanical devices and alterations to existing equipment--that permit only minimal levels of energy use in homes with a history of unpaid bills. Limited service usually is offered as the last alternative to termination of service. The expanded use of service limiters raises some difficult policy questions.

For utilities, service limiters provide an opportunity to reduce their potential financial losses while maintaining a greater number of paying customers. By keeping these customers on line, utilities improve their opportunity to collect overdue bills. Companies have experienced up to 20 percent higher reconnection rates when using limiters. Revenue from the household does not stop altogether but continues at a slower rate. Utility personnel face fewer confrontations with customers either at their dwellings or on the telephone by limiting service rather than shutting it off.

Use of the service limiters has several disadvantages. Installation and removal of the device require labor and capital costs. (However, in most cases, these costs are repaid by the revenue gained by continued services.) Limiting electricity to as low as 8 amperes is neither convenient nor

comfortable for residents; its purpose is to limit the utility's financial losses and encourage customers to make back payments.

Although service limiters are troubling to policymakers--they provide an alternative to a total lack of service. After a recent congressional hearing, LIHEAP recipients from Baltimore, Maryland, described a family left without electricity using candles to provide light. A fire broke out, killing several children. Life for many low-income families is grim: Often there is no way to keep both heat and electricity turned on and households have to make difficult choices.

Use of service limiters over extended periods of time raises serious concerns. Some argue that such a use runs counter to long-standing social and political policies that support the provision of utility services for the poor rather than limiting them. Others believe that the use of limiters is irresponsible when the utility offers no significant conservation progam. Selective limitation of customers' access to energy services creates classes of customers, and classes of citizens. On the other hand, some households have requested permanent use of the limiter to control their costs and thus face fewer difficulties paying their energy bills. One utility representative stated, "we have customers demanding that we keep the service limiter installed, even after they've caught up on their bill and far after our normal 14-day limit."[115]

The dilemma is that service limiters are better than not providing energy services at all. However, widespread reliance on them as a solution would deny responsibility for providing essential energy needs and condone treating the poor as second class citizens.

In Pennsylvania, the Governor's Energy Council established an alternative to limited service through a pilot program in Philadelphia and Pittsburgh in 1986. It involved 25 homes and used the National Center for Appropriate Technology as the main contractor. The program weatherized the shells of the houses and installed zone heaters in the main living areas. The Council selected highly efficient heaters that warm the whole house comfortably if air circulation is good. The homes selected for the project used gas heat and had two stories, three rooms on the first floor and three on the second floor.

The Energy Coordinating Agency of Philadelphia worked with the households to make sure the heater was located for the best heat circulation and educated the household on energy use. A counselor visited the home at least three or four times. The homes were carefully monitored with five to six gas meters--on the furnace, the zone heater, the hot-water heater, the dryer, the stove, and the main. Temperatures were recorded for the basement, first, and second floors and logged in every hour by computer.

These pilot homes averaged 40 to 45 percent in energy savings for all gas use and 50 to 55 percent for heat, reducing the typical gas bill from $800 per year to $500.[116] The heater costs $600 to $700 without installation and $1,200 installed. In general, the program has been very successful and the households have been pleased with the results. However, the technology is best suited for two-story homes in mid-row rather than the end and in good repair structurally. For these homes the program has great potential, according to the Energy Coordinating Agency. While many poor Philadelphians live in such homes, about 40,000 currently have no heat except kerosene.

Weatherization of low-income homes can lower energy consumption and costs appreciably for a number of years, effectively easing the energy burden for the poor. The achievement of savings of 20 to 40 percent, however, requires a substantial investment. The measures chosen must fit the structure, and quality materials and workmanship must be used. Weatherization can bring substantial improvement in a building's soundness and its mechanical systems; public programs raise concern when they benefit landlords who are not poor. Because of the complexity, expense, and public policy issues raised, low-income weatherization programs have not received the support and funding extended to low-income energy assistance.

Elected officials are more responsive to crises and quick resolution of utility disconnections and families without heating/cooling than long-term solutions. But with utility arrearages mounting and energy costs still unmanageable, more attention is being given to structural problems and solutions, such as weatherization. Some utility commissions have encouraged or ordered utilities to provide weatherization services to the poor and elderly. Some cities, nonprofit organizations, and foundations have created innovative financing and other incentives aimed at rental housing.

Much has been learned about cost effective weatherization measures, although gaps in knowledge still exist. Heating/cooling-system improvements have proven particularly cost-effective. Researchers have documented savings attributed to different weatherization measures. Analysts have compared the results of different weatherization programs and delivery systems.

With the distribution of oil overcharge monies to the states, officials have an opportunity to reexamine the costs and benefits of providing energy assistance and weatherization to needy families. It is an ideal time for states to expand weatherization programs drawing on improved information.

Public officials are also weighing the benefits of more utility involvment in low-income conservation programs. Electric utilities now are more likely to invest in conservation to avoid building new generating capacity. Mounting arrearages for gas utilities also has increased their interest in reducing energy costs of poor families to a manageable level.

The recent development of service limiters underscores both the need for more manageable energy costs and the inadequacy of current weatherization programs. Limiting utility service should not be viewed as a suitable alternative to a combination of weatherization measures and adequate energy assistance for the millions of households who need relief from unmanageable energy costs.

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7. Recommendations

Federal appropriations for LIHEAP have declined since 1985, reflecting the lack of public awareness of poverty and energy issues. In fact, LIHEAP's share of energy costs owed by federally eligible low-income households has declined every year since the program was established in 1980. Against this backdrop of federal disinterest and erosion of responsibility, poor people have had to cope with steadily rising costs of basic utilities such as electicity, gas. water, and telephone. Some state and local governments increased their supplements to federal assistance, but coverage remains inadequate. Moderation of poor peoples' arrearages, utility disconnections, lack of essential services, and evictions requires greater public and private efforts. This section outlines recommendations to improve federal, state, and local attempts to devise long-term solutions to the problem of energy costs that are unmanageable for too many of the nation's poor and elderly.

The Federal Government

Congress should require the Department of Health and Human Services to submit annually state-by-state estimates of total energy costs for eligible households, the national total, plus estimates of each state's average heating/cooling costs. With these data, Congress and interested public advocates could assess the adequacy of federal levels of support. Congress receives none of this information at present. Funds are allocated on estimated state percentages of total national eligible costs, but these are not highlighted in reports to Congress. HHS also should provide information on the average income of federally eligible households by state, which would reveal the gap between families' coverage of energy bills and LIHEAP appropriations, plus the amount left unpaid.

Congress should address the more difficult issue of setting the level at which federal assistance is given. Payments should cover at least 25 percent of eligibles' estimated heating/cooling expenses; the current 19.5 percent forces the lowest income households into crisis situations each winter. Additional funds should be allocated for maintaining an adequate database on total state energy costs and updating the number of households eligible by state standards. Federal assistance must be based on reasonably accurate estimates of the extent and pervasiveness of the problem.

Similarly, the Energy Committees of the House and Senate should set a standard for federal low-income weatherization funding that reflects the magnitude of the need for this help. It is difficult to overstate the importance of this strategy, which holds the promise of addressing the structural problems of energy burdens unmanageable for the poor and elderly.

The federal and/or state governments should devise new standards for energy-efficient manufactured housing at least equal to those for site-built homes. They also should require the labelling of new mobile homes according to efficiency ratings. Some combination of agencies should set energy-efficiency

standards for publicly-funded rehabilitations of public and private housing stock.

Congress should fund an analysis of the differences between predicted and actual energy savings in weatherization projects. It also should fund research on the optimal combination of cost-effective building shell and mechanical-equipment improvements for different types of buildings. More information also is needed on the actual life-time performance of weatherization measures.

The Department of Housing and Urban Development should change its Performance Funding System to encourage Local Housing Authorities to invest in energy-efficiency measures. The current structure of the Performance Funding System sometimes penalizes LHAs for making these investments.

State Governments

Even with more generous federal support assistance (paying 25 percent of eligible heating/cooling expenses discussed above), states must explore ways to supplement energy weatherization and assistance. The certainty of reductions in federal support in fiscal 1988 gives these efforts even greater urgency. States should redesign the operations of both cash and conservation programs to equalize the energy burden among eligible households. State officials should use the following sources:

- **State general revenues.** Legislatures in Ohio, Massachusetts, and Michigan have appropriated funds to supplement federal monies. Michigan supplies nearly one-third of the energy assistance funds at work in that state from its own coffers.

- **Federal Emergency Assistance Program.** The EAP matches state appropriations for crisis assistance on a dollar-for-dollar basis. Michigan took the lead in requesting this aid to pay the heating bills of welfare recipients.

- **Special revenue sources.** States should tap special sources such as lottery funds and establish more permanent support mechanisms such as tax credits for energy providers. For example, New Jersey collects nearly half of its energy assistance funds from casino revenues; West Virginia gives utilities a tax credit that enables them to offer a 20-percent discount to all their low-income customers.

- **Reduce the cost of unregulated fuels.** State program administrators should explore ways to lower the cost of home heating oil and other unregulated fuels for low-income households. Maryland, for example, requires oil dealers to give a 10-percent discount to all LIHEAP customers.

- **Oil overcharge monies.** States were required to use their Exxon monies for low-income programs, much of which went to energy assistance and weatherization. Stripper Well money still being returned to the states carries fewer restrictions. States should continue to commit a healthy portion for low-income energy uses, particularly to supplement weatherization assistance.

State LIHEAP administrators should redesign LIHEAP benefit matrices to reflect actual household energy costs, rather than assuming that surrogate variables will approximate these costs. Under current procedures, assistance payments may range from a nominal portion to more than 100 percent of heating bills. A system that required low-income households to pay the same percent of their income for home energy costs and covered the rest with assistance payments would be preferable.

State officials should study the establishment of a percent of income program to equalize the energy burden among low-income households with varying supplemental payments. In establishing a PIP, states should consider the following.

- The demographics of poverty and the resources available in a particular state should be carefully examined to determine energy needs and funding levels accurately. Wisconsin, Minnesota, and Rhode Island have explored the feasibility of PIPs carefully in light of their poverty populations and economic conditions.

- To allow the poor to make "affordable" payments, states have to supplement federal LIHEAP funds. States may have to underwrite the amount needed to cover participant shortfalls to avoid shifting program costs to other ratepayers. The PIP demonstration programs in Wisconsin and Rhode Island do this. Ohio and Maryland, each responding to shutoff crises, did not follow this model and have not found a way to avoid this cross-subsidy.

- A LIHEAP-based model that minimizes participants' liability for pre-enrollment or program arrearages may be needed. Without this feature, participants may be overwhelmed by arrearages when they begin earning enough to get off the program.

- PIPs must not contain provisions that unintentionally encourage households to create a crisis to boost their energy-assistance benefits or that discourage conservation improvements. Incentives for participants' good-payment performance relative to their abilities may be needed as a condition of crisis assistance. To avoid the perception that unlimited usage is "free," PIP assistance should be capped when energy bills go above a reasonable level. When consumption levels are too high the program should provide weatherization measures and education immediately. Wisconsin has proposed this policy as an adjunct to its PIP demonstration program.

To minimize the occurrence of crisis situations, state agencies, program administrators, utilities, and social service agencies should work together to develop a comprehensive, fully integrated assistance program that quickly identifies households in greatest need. The program should give them cash assistance, weatherization, energy-related home-repair services, and other kinds of help. Wisconsin has taken the lead in this area through its Early Identification Program.

Governors should convene statewide task forces to make recommendations on the design and administration of energy-assistance programs where such planning bodies do not exist. Michigan, Wisconsin, Minnesota, Illinois, Ohio, and Rhode

Island task forces have allowed administrators, legislators, regulators, utilities, and consumer advocates to explore and solve problems of common concern. Well-run energy-assistance programs require considerably more than perfunctory management and minimal resources. Efforts to target assistance, educate consumers, and assure quality control will not succeed without sufficient personnel and committed, skilled leadership.

States must begin to supply more weatherization funds to replace declining federal support. If the combination of federal and state funds still is unable to fill the need, states should require utilities to offer low-income customers weatherization options such as conservation measures with a five-year payback. Utilities should have incentives such as California offers for conducting a good weatherization program. For example, electric utilities could be allowed to factor their investments in energy efficiency into the basic rate structure. States could allow them to deduct conservation investments from taxes owed. This plan would effectively pay for utility investments from foregone state revenues rather than tapping other ratepayers. It also would remove this strategy from the annual scrutiny of the state appropriations process. States then could target their federal weatherization and oil overcharge monies to homes that use non-utility fuels.

In addition, states should:

- encourage the establishment of energy service companies and design other creative financing programs to provide weatherization for large multifamily buildings;

- implement stricter quality controls in their weatherization programs (ideally with utility partnership like TVA or the Wisconsin example), and incorporate heating/cooling equipment improvements and payback guidelines so that the most effective weatherization measures are taken; and

- set up state and possibly local task forces that include representatives from utilities, state legislature, governor's office, public utility commission, and consumer advocates with the authority to deal with problems that arise from larger weatherization programs, such as building codes, coordination, poor quality installations, or retrofits.

Local Governments

Local agencies that control Community Development Block Grant funds and other housing-rehabilitation resources should coordinate those programs with state-administered low-income weatherization programs. For instance, they could target needed housing shell and equipment repairs to clients of the state program, so that weatherization could be performed effectively.

Utilities

Utilities should experiment with programs tailored to their customer base and service territory. While the solution to filling the home energy gap is primarily a government responsibility, utilities must be active partners and

devote some resources to serving their low-income customers in need. Carefully designed programs need not place an unfair burden on the company's other ratepayers. "Ability to pay," weatherization, and "critical-needs" programs may meet these criteria.

Utilities should continue to encourage the operations of fuel funds in their service territories and work with participating agencies to encourage more support from customers and businesses. Utilities should become more involved in efforts to assure adequate levels of federal and state energy aid and design more equitable cash assistance and effective weatherization programs. They also should play a larger role in helping state offices identify families with high arrearages to target for a coordinated approach of education, weatherization, budget counselling, and payment help.

Philanthropies, Social Service Agencies, and Community Groups

Philanthropies responded to the early stages of the energy crisis by supporting emergency needs programs aimed at assuring continued service to households at risk. Given the limited resources of the philanthropic community, ongoing emergency needs support may not be the best use of such funds. Philanthropies--both private and corporate--should be encouraged to support carefully designed demonstration education and weatherization programs that fill gaps in the large-scale federally funded weatherization programs. Such programs should be attractive to foundations whose interests range from amelioration of poverty conditions to those who regard their focus as supporting individual self-sufficiency.

Social service agencies should be encouraged to involve themselves in "concentrated assistance" efforts: an examination of the whole person, family and context in contrast to a focus on particular problems and highly specialized responses.

Community groups can serve as one source outlets for energy-related services, from LIHEAP enrollment to do-it-yourself weatherization to consumer education. Doing so would make all related services (with a variety of sponsors) easily accessible to low-income households.

Appendix A

Legislative Histories of Energy Assistance, and Weatherization Programs, and Oil Overcharge Cases

Low-Income Assistance

LIEAP

In September 1979, President Jimmy Carter called for the creation of a new federal program to help the poor cope with high energy costs. It would consist of an Energy Crisis Assistance Program (ECAP) to help states run emergency programs and a Special Allowance Program to provide energy assistance to needy households with incomes below 125 percent of the federal poverty level. While the legislation was under consideration, Congress appropriated $1.6 billion on a one-time basis: $400 million for ECAP, $400 million for recipients of Supplemental Security Income, and $800 million for energy assistance block grants to the states. The latter two components of the funding were distributed according to an allocation formula.

Congress established the LIEAP program on a permanent basis in Title III of the Crude Oil Windfall Profit Tax of 1980 (P.L. 96-223). Officially named the Home Energy Assistance Act of 1980, it states in part,

> Fixed income, lower income, and lower middle income households should be protected from disproportionately adverse effects on their incomes resulting from national energy policy. . . . Adequate home heating is a necessary aspect of shelter and the lack of home heating poses a threat to life, health, or safety.

First-year funding for the program was set at $1.85 billion, which included $89 million for an Energy Crisis Intervention Program in the Community Services Agency.

The Department of Health, Education and Welfare (HEW), since renamed the Department of Health and Human Services (HHS) was authorized to provide assistance to low-income households to offset rising home energy costs through block grants to the states, the District of Columbia, territories, and tribal organizations. The legislation defined home energy as residential heating and cooling; however, cooling assistance was limited to instances where it was medically necessary.

The new program revised the older formula for allocating the funds among the states. It required the states to submit plans for distribution of funds to the Secretary of HEW. States had to provide benefits based on a given household's energy burden. They could give help through direct payments to the eligible households, payments to the suppliers of energy services, or a combination of both. The act also required program managers to coordinate LIEAP functions with those of other energy programs, such as referral of LIEAP recipients to the weatherization program. In sum, the LIEAP consolidated

earlier energy-assistance efforts and permitted more comprehensive planning in the delivery of services by the states.

LIHEAP

As part of his "New Federalism" initiative, President Ronald Reagan proposed in 1981 the merger of LIEAP with other existing block grant programs providing households with emergency financial assistance. Although many parts of the New Federalism did not pass Congress, Title XXVI of the Omnibus Budget Reconciliation Act (P.L. 97-35) authorized the Low Income Home Energy Assistance Program (LIHEAP), maintaining it as a separate block grant program with a 3-year, $1.875 billion annual authorization. The allocation formula remained the same.

The LIHEAP legislation, which repealed the previous year's bill, changed the program in several respects.

- States were no longer required to obtain federal approval for their plans, only to certify that a plan would meet the statutory requirements. Most federal oversight responsibilities were assigned to the Office of Family Assistance in HHS.

- States received greater flexibility in choosing the types of energy assistance they could provide. For example, a state could set aside up to 15 percent of its LIHEAP monies for "low-cost residential weatherization and other energy-related home repair for low-income households." They also could transfer up to 10 percent of LIHEAP monies to any of the six other block grant programs administered by HHS. (Most states exercise both of these options.)

- Households now were eligible for participation if their incomes were less than or equal to 150 percent of the poverty level or 60 percent of their state's median income, whichever were greater. States could limit eligibility for payments to lower levels if they chose.

- Restrictions on cooling assistance were removed.

When LIHEAP'S three-year authorization expired in 1984, Congress reauthorized it for two more years in Title VI of the Human Services Reauthorization Act of 1984 (P.L. 98-558) at a level of $2.14 billion for fiscal 1985 and $2.275 billion for fiscal 1986. This legislation made several changes to the program, most of which took effect in fiscal 1986. Major changes included the following:

- A new distribution formula was adopted to match each state's share of total national expenditures for home energy by low-income households. The formula also included transitional "hold harmless" provisions, the most important of which required that no state would receive fewer funds in fiscal 1985 than it did in fiscal 1984.

- The maximum amount a state could carry over from one fiscal year to the next was reduced from 25 to 15 percent of its allocation, which could not be transferred to another block grant.

- Starting in fiscal 1986, states could not set eligibility limits lower than 110 percent of the poverty level. The maximum income levels did not change.

- States had to provide to HHS more detailed information in their reports.

Weatherization Set-Aside

The 1981 LIHEAP reauthorization permitted states the option to set aside up 15 percent of their annual allocation to help low-income families weatherize their houses. The goal of this provision was to find a more permanent solution to the energy problems of low-income residents than seasonal direct financial aid could support. In fiscal 1982, the first year of the set-aside, states transferred $136 million to weatherization programs; by fiscal 1984 the amount had increased to $205 million--66 percent of the allowable total. States also were permitted to shift their LIHEAP weatherization set-aside funds into the Low-Income Weatherization Assistance Program (WAP) run by the Department of Energy. In fiscal 1984, for example, states shifted 82 percent of their LIHEAP set-aside funds (totalling $167 million) to the DOE program and used the remaining 18 percent ($38 million) to support other weatherization efforts or projects that did not meet the DOE program guidelines.

Oil Overcharge Funding

The administration's fiscal 1985 budget request proposed funding LIHEAP from settlement monies ordered by the courts involving oil overcharge violations. The president proposed to establish a Petroleum Overcharge Restitution Fund (PORF) and use its funds rather than general appropriations to finance LIHEAP. Congress refused to place LIHEAP on such shaky ground; it decided that if sufficient funds were not available from PORF, money would come from general revenues. In fact, general revenues had to be used.

The administration's fiscal 1986 budget request proposed to provide approximately 63 percent of LIHEAP funding ($809 million) from oil overcharge monies and the remainder ($482 million) from general revenues; again, Congress refused and funded the entire program from appropriations. Although the fiscal 1987 request did not include the use of oil overcharge monies for LIHEAP funding, it assumed passage of legislation to take $1.0 billion in oil overcharge funds for the federal treasury. Congress did not pass this legislation. However, LIHEAP funding was cut from $2.07 billion to $1.825 billion, a 12 percent reduction, primarily due to concern over budget deficits and the argument that states could use oil overcharge monies to supplement the program.

1986 Reauthorization

The Human Services Reauthorization Act of 1986 (P.L. 99-425) reauthorized the LIHEAP at the following levels:

fiscal 1987	$2.050 billion
fiscal 1988	2.132 billion
fiscal 1989	2.218 billion
fiscal 1990	2.307 billion

Congress amended the program to fulfill the intent of the 1984 Human Services Act. These amendments were meant to:

- provide for administering of energy-crisis intervention programs in a timely fashion;
- clarify what states had to include in their administrative plans;
- require provision of equal benefits to categorically and income-eligible recipients; and
- spell out the circumstances under which LIHEAP funding could be used for technical assistance and training.

Low-Income (Home) Energy Assistance Program Authorization, 1980-1987
(in billions of dollars)

Fiscal 1980	Fiscal 1981	Fiscal 1982	Fiscal 1983	Fiscal 1984	Fiscal 1985	Fiscal 1986	Fiscal 1987
1.60	1.85	1.88	1.93	2.08	2.10	2.01	1.83

Weatherization Programs

DOE Weatherization Assistance

Congress established the first federal weatherization program in 1975 in the Office of Economic Opportunity (later shifting it to the Community Services Administration) and funded it through fiscal 1978.

In 1976, Congress created the Low-Income Weatherization Assistance Program (WAP). The Federal Energy Administration (now the Department of Energy) was charged with administering this program and is still in operation. The purpose of WAP is

> . . . to develop and implement a supplementary weatherization assistance program to assist in achieving a prescribed level of insulation in the dwellings of low-income persons, particularly elderly and handicapped low-income persons, in order both to aid those persons least able to afford higher utility costs and to conserve needed energy.

The program was later reauthorized and amended by the National Energy Conservation Policy Act of 1978 (P.L. 95-619, which discontinued the CSA weatherization program), the Energy Security Act of 1978 (P.L. 96-294), and the Human Services Reauthorization Act of 1984 (P.L. 98-558).

The Weatherization Assistance Program divides responsibilities among the federal Department of Energy, the states ("grantees"), and local nonprofit organizations ("subgrantees"). Subgrantees, typically local governments, tribal organizations, and community action agencies, do the actual conservation work.

The Department of Energy distributes the block grants to the states and District of Columbia which, in turn, redistribute the funds to the subgrantees. The program is administered by the Office of State and Local Programs[1] which promulgates and implements program regulations and provides technical assistance to the DOE operations and support offices. DOE operations offices are responsible for approving the states' annual applications, awarding the grants, monitoring the operation of each state's program, and reporting on the program.

Each state is responsible for developing its own weatherization program, monitoring the work performed by its subgrantees, and reporting to its respective DOE operations office. States may use up to 5 percent of their grant for program administration.

The authorizing legislation and DOE regulations permit such measures as installation of insulation, caulking, weatherstripping, storm doors, storm windows, and automatic thermostats to diminish overall heat loss; the modification or replacement of furnaces and water heaters for greater fuel efficiency; and limited repairs on windows, doors, and heat ducts. Initially, the maximum allowable costs were $1,600 per unit; the 1984 reauthorization raised this limit to $1,600 per unit state average, with at least 40 percent of costs for materials.

Several differences between WAP and LIHEAP program design are worth noting. First, DOE regulations set the WAP allocation formula while LIHEAP's formula is established by statute. The WAP formula takes into consideration residential energy use, the number of low-income households for each state and climatic differences among the states. Second, WAP eligibility originally was set at 125 percent of the federal poverty level (rather than LIHEAP's 150 percent of federal or 60 percent of state median income); since 1985, however, they could choose to use the LIHEAP income-eligibility limits. Third, WAP has very specific guidelines for the states and their subgrantees; no such restrictions apply to the state weatherization programs permitted under the LIHEAP set-aside provision (see earlier discussion).

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[1] WAP is one of the four DOE State and Local Assistance Programs; the others are the State Energy Conservation Program, the Energy Extension Service, and the Institutional Conservation (Schools and Hospitals) Program.

1984 Reauthorization

The Human Services Reauthorization Act of 1984 (and subsequent DOE regulations) brought several important changes in WAP. These provisions:

- removed the $1,600 per unit maximum in favor of a $1,600 average per state (when the program started in 1977, the per unit maximum was $400);
- allowed states to use the LIHEAP income-eligibility levels;
- required at least 40 percent expenditures on materials;
- allowed the program to pay for replacement furnaces and boilers, as well as the reweatherization of dwellings partly weatherized in fiscal 1976 through fiscal 1979; and
- established a performance fund of between 5 and 15 percent of annual appropriations for distribution to states by DOE on a discretionary basis.

The administration proposed the use of oil overcharge monies to fund WAP in fiscal 1985 and 1986. Its 1986 request also proposed phasing out the State and Local Assistance Programs--including weatherization--over a five-year period. Congress did not accept these proposals, and the program received $189 million in fiscal 1986. The fiscal 1987 appropriation provided $200 million for these programs. The administration's plan was made possible by the accumulation of monies from recouped refined products cases brought under the Emergency Petroleum Allocation Act (see the discussion in the next section). Congress decided to recoup these funds after states defeated its attempt to rechannel stripper well funds to the federal treasury. DOE estimates the $420 million is currently available in escrow accounts. Thus, $200 million goes to fund the State and Local Programs and $240 goes to the treasury for deficit reduction. The Low-Income Weatherization program received $144 million of the funds, which could be used to administer Exxon funds (in a ratio of ten percent for administration) or to fund actual weatherization work.

WAP was funded without reauthorization in fiscal 1987 and may be again in fiscal 1988. However, it could not be funded at higher than current funding levels without reauthorization.

Federal Weatherization Assistance, Fiscal 1975-Fiscal 1987

Fiscal Year	DOE Weatherization Funds (in millions of dollars)
1975	0
1976	0
1977	27.5
1978	64
1979	199
1980	199
1981	175
1982	144
1983	245
1984	190
1985	191
1986	189
1987	144
Total	1,768.5

Oil Overcharge Cases

Following the OPEC oil embargo of late 1973 and the consequent jump in prices, Congress passed the Emergency Petroleum Allocation Act (EPAA) of 1973. Domestic oil price controls were established on August 19, 1973, by the Cost of Living Council as part of President Richard Nixon's program to control inflation. EPA, and the accompanying regulations of the Federal Energy Office set out to regulate the price and allocation of petroleum. After the creation of the Department of Energy (DOE), the authority to regulate petroleum prices was given to the Economic Regulatory Administration (ERA). President JimmyCarter initiated the gradual removal of all price controls on domestically produced oil. Decontrol was finalized by Executive Order 12287, which was signed by President Ronald Reagan in January 1981.

If ERA finds that an oil company charged consumers more than the allowable amount under the pricing schedule, ERA may negotiate a settlement with the company and/or initiate legal proceedings against it to resolve the alleged violation. When a settlement is reached, every attempt is made to provide restitution to consumers who can demonstrate injury by the overcharge; they tend to be major consumers such as airlines and bus companies.

In cases where aggrieved parties cannot be readily identified and direct restitution cannot be made, DOE has agreed to several types of distribution of the funds, including payments to the general accounts of the U.S. Treasury, to DOE's interest-bearing oil overcharge escrow account at the Treasury, and payments to the states for the indirect restitution of energy consumers. Settlements in court cases typically have followed the principle "to make victims whole, so far as possible". The presiding judges have determined the means of restitution and have often distributed funds to the states, after compensating parties that proved direct injuries.

Between 1973 and 1981, numerous domestic oil producers deliberately or inadvertently violated the controls and charged excessive amounts for crude oil and/or petroleum products. ERA was responsible for:

- identifying violations of the pricing and allocation regulations;
- recovering the amounts overcharged by the violators; and
- obtaining restitution for injured petroleum consumers.

Under the provisions of the Warner Amendment passed by Congress in December 1982 (P.L. 97-377, Section 155), DOE distributed $200 million of the funds in the oil overcharge escrow account to the states for consumer restitution. It based the distribution formula on the proportion of each state's share of U.S. petroleum product purchases during the period of price controls. States could use the funds for any of the five following programs: Low-Income Home Energy Assistance (LIHEAP), Low-Income Weatherization Assistance (WAP), Institutional Conservation, Energy Extension Service, and State Energy Conservation Planning. LIHEAP is the only one of the four administered by the Department of Health and Human Services; others are administered by the Department of Energy.

DOE has estimated that oil companies may be liable for an additional $5 to $6 billion in oil overcharge settlements. In January 1986, the Supreme Court refused to review the largest case, Exxon, thus reaffirming the trial court's settlement of $895 million, plus $1.3 billion in interest. The courts have decided to use the Warner Amendment approach to distribute this $2.1 billion to the states for use in the five programs listed above.

Section 3001 of the Omnibus Budget Reconciliation Act, the Petroleum Overcharge Distribution and Restitution Act of 1986, preserves the "Stripper Well" settlement. Under the Stripper Well agreement, all of the nongovernmental, identifiable, injured parties will receive settlements. The states and the federal government will split the remaining funds evenly. The states will receive more than their half in the beginning with the federal government receiving more as future cases are settled. Originally the states were to receive funds based on consumption of crude oil during the period of oil overcharge--a formula much like the Exxon distribution formula. However, the distribution formula was modified slightly. It yielded $746 million to the states and eventually will provide an estimated $2.25 billion to $4 billion.

However, states will be able to use their Stripper Well funds for projects other than the five energy conservation and assistance programs allowed by the Exxon settlement. In addition, the states will be able to make capital purchases of energy conservation equipment and use funds for highway repair and maintenance. Furthermore, all uses previously approved by the DOE's Office of Hearings and Appeals are allowable under the Stripper Well settlement. Other key points include:

- states are required to hold public hearings in developing plans to spend their funds;
- states are required to consider low-income populations in developing their programs;

- state programs are subjected to prenotification of DOE and the District Court; and

- each governor must sign a letter of assurance stating that "the terms and conditions concerning the uses of the funds to be disbursed pursuant to the Agreement and Order will be adhered to in the use of any such funds."

Although Congress did not divert oil overcharge funds to the federal Treasury, it has continued to justify lower funding levels for both LIHEAP and WAP on the fact that states have oil overcharge money to use for the programs.

Appendix B

The Massachusetts Weatherization Program

A study of weatherization assistance programs in the state of Massachusetts found that "complete weatherization" was one of the most cost-effective of the programs undertaken. The houses studied that had received complete weatherization had an average payback period of less than three years. A separately undertaken burner replacement program, for which approximately 25 percent of the houses receiving assistance were judged suitable, was found to have a payback period of two years.[1]

The most common measures installed in the 22 houses studied that had received "complete weatherization" in the program were:

Measure	Number of Houses
Window Weatherstripping	22
Caulking	20
Door Weatherstripping	20
Pipe Insulation	16
Water Heater Insulation	16
Window Repairs	15
Sidewall Insulation	14
Attic Insulation	12
Outlet Gaskets	12
Sill Insulation	11
Glass Replacement	10

These numbers reflect measures actually chosen and do not necessarily reflect which measures were considered to be the most cost-efficient. For example, attic insulation in cases where the attic is marginally insulated or the insulation is severely deteriorated is probably one of the most cost-effective options available. The fact that attic insulation was only chosen about half the time may be due to some of the houses already having insulation that was considered adequate.

[1] Other measures installed by the program include (in order of frequency of use): glazing, duct insulation, interior storm windows, exterior storm windows, burner replacement, clock thermostats, low-flow showerheads, burner tuneups, and burner repairs.

Appendix C

The Wisconsin Program's Ranked List of Weatherization Measures

The following list is a general approach to weatherization of existing houses. Individual houses may have conditions that would change priorities, eliminate options, or require different weatherization techniques due to building conditions, costs, or other factors.

1. Stop major infiltration through gaps, broken glass and other large open infiltration paths. Blower door usage is recommended to locate these areas and/or train personnel to locate infiltration paths. Typical activities include:

- o replace broken glass and repair or replace primary sash as necessary;
- o adjust and weatherstrip primary doors; door replacement may be necessary to achieve a good seal;
- o repair broken and missing plaster on walls and ceilings;
- o weatherstrip and latch attic scuttle;
- o seal attic bypasses around vents, chimneys, electrical wiring, and wall cavities; and
- o seal utility penetrations through exterior walls.

2. Insulate previously uninsulated or marginally insulated attics (less than R-4) to R-38. Install appropriate venting and safety devices. Insulate scuttle door.

3. Insulate water heaters (R-8 minimum) and accessible hot water lines. Insulate cold water line for first three to five feet leading from water heater. Reduce water heater temperature to 125 degrees F. Install low-flow showerhead and faucet flow restrictors.

4. Replace unsafe or inoperable heating systems. For natural gas or propane heating systems, clean, adjust, and tune as necessary. Install thermal vent damper(s) where possible. For all heating systems: inspect and clean chimneys if necessary, balance the distribution system, clean the furnace blower, clean and adjust fan limit switch, and replace furnace filter. These measures are all low cost and possibly short lived, however, their effect can be substantial.

5. Insulate previously uninsulated sidewalls with blown insulation.

6. Insulate floors above crawl space areas. (Insulate foundation walls of crawl space if more practical.) Place vapor barrier on ground to reduce moisture problems.

7. Bring attic insulation levels that are less than R-11 up to R-38.

8. Seal sill box area. Insulate sill box to a minimum of R-19.

9. Tape joints in duct work and insulate duct work or boiler pipes in unheated areas.

10. For fuel oil furnaces and boilers, install flame retention head burner and derate if possible. Clean, adjust, seal, and reline fire box if necessary. Replace furnaces or boilers that have reached the end of their useful life.

11. Reduce minor infiltration. Caulk cracks (on interior side) around window frames, door frames, baseboard, and other interior cracks. Weatherstrip leaky primary windows, install sash locks, and pulley seals (where appropriate). Install electrical outlet gaskets. Usage of blower door is recommended to locate actual leakage areas. Reduce leakage to approximately 10 ACH at 50 PA. Do not complete these activities if there are indications of moisture problems such as mildew or deteriorated sashes.

12. Bring attic insulation levels between R-12 and R-19 up to R-38.

13. Install storm windows on single glazed windows where no storm exists or the storm is deteriorated and ineffective.

14. Insulate foundation walls where substantial exposure exists such as raised ranches and walk-out basements, or where the basement is used as a living area.

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Diane DeVaul is director of policy at the Northeast-Midwest Institute and a specialist on energy issues and the regional effects of federal spending. Previously, she served as a consultant to the Department of Housing and Urban Development's Office of Community Planning and Development, providing program recommendations for two urban initiatives to the Assistant Secretary. DeVaul was a research assistant at the National Center for Economic Alternatives, where she worked on a community-ownership plan for Youngstown Steel Company. She also coauthored an evaluation of an alternative energy policy as part of a report assessing President Carter's energy plan. She has presented papers recently at the Second Trinational Energy Policy Workshop at Stanford University, the International Association of Energy Economists, and Johns Hopkins University.

DeVaul's doctoral work (A.B.D.) is in sociology at the University of Maryland. Her publications include the State Energy Factbook, and Trading in Power: The Potential for U.S.-Canadian Electricity Exchange. She also is a published poet.

Clifford Pearlman is a founder and the managing partner of The Conservation Company, a Philadelphia-based consulting firm. The firm has worked with utilities, local government, and nonprofit organizations on the design and implementation of energy-assistance programs. Pearlman currently is a member of the Board of the Energy Coordinating Agency of Philadelphia and is an advisor to the Utility Emergency Services Fund of Philadelphia. He holds a J.D. from Yale Law School and a B.A. from Queens College (N.Y.).

Nan Beth Ross is a senior associate with The Conservation Company. She was responsible for the early development of the Utility Emergency Services Fund. Ms. Rosso is the author of a 1983 report on the home heating needs of low-income Philadelphians, and has directed several evaluations of utility-assistance programs in the city. She holds an M.A. degree from the University of California, Berkeley.